

# **Southeastern Massachusetts University**

## **General Catalogue 1984-1986**





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Southeastern Massachusetts University  
North Dartmouth, Massachusetts

# **General Catalogue 1984-1986**

**For admissions information:**

Director of Admissions  
Southeastern Massachusetts University  
North Dartmouth, Massachusetts 02747  
617-999-8605

## **Affirmative Action Policy**

Southeastern Massachusetts University is an Affirmative Action/Equal Opportunity Employer. The University particularly encourages applications from members of minority groups and women.

It is the policy of Southeastern Massachusetts University not to discriminate against any applicant for employment or admissions, or against any employee, or in any educational programs on the basis of race, color, religion, national origin, age, sex, or condition of handicap as required by Executive Orders 11246 and 11375 as amended and Commonwealth Executive Order 74 as amended by Executive Order 116 and the Board of Regents Equal opportunity regulations.

The University's Affirmative Action Plan is intended to guarantee equality of opportunity in employment and education, and to reduce the underrepresentation and under-utilization of minority groups and women at the University. For all categories of employment, our objectives are to meet or to exceed our projected goals and timetables while, at the same time, providing new opportunities for career development.

Similarly, for all of the University's educational programs, our objectives are to achieve a representation of minority groups and women in the student body which reflects their current availability and interests. Furthermore, these individuals will be encouraged to take full advantage of all University resources which might enhance their educational exposure.

Students who have personal concerns relating to their minority group or sex status should relate those concerns to the Affirmative Action Officer.



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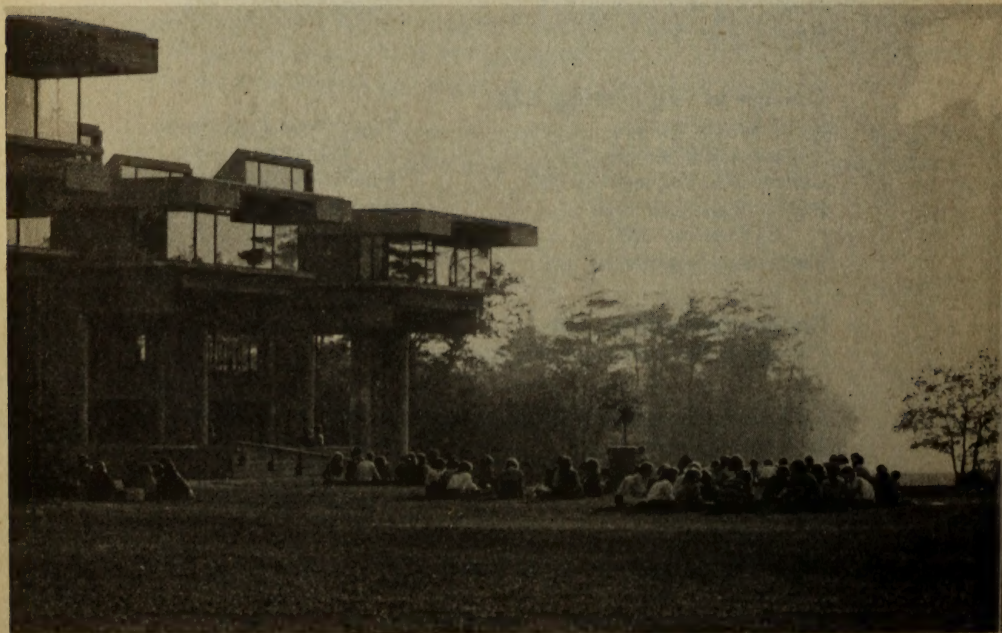
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# General Information

Southeastern Massachusetts University is fully accredited by the New England Association of Schools and Colleges. Its colleges, departments, and programs hold memberships in or affiliations with numerous professional associations. Some colleges, departments, and programs hold additional accreditation from specific accrediting bodies.





**Bachelor of Arts or Bachelor of Science Degrees****College of Arts and Sciences**

Biology	Mathematics
Chemistry	Medical Technology
Computer and Information Science	Multidisciplinary Studies
Economics	Philosophy
English	Physics
Foreign Literature and Languages (French, German, Portuguese, Spanish)	Political Science
History	Psychology
Humanities and Social Sciences	Sociology / Anthropology

(Students may meet state accreditation standards through course work in the Department of Education).

**College of Business and Industry**

Accounting	Marketing
Finance	Textile Chemistry
Human Resources Management	Textile Technology
Management	

**College of Engineering**

Civil Engineering	Mechanical Engineering
Computer Engineering	Electrical Engineering Technology
Construction Engineering	Mechanical Engineering Technology
Electrical Engineering	

**College of Visual and Performing Arts**

Art Education

Fine Arts

Art History

Music

Design

**College of Nursing**

Community Nursing

Institutional Nursing

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**Master's Degree**

Art Education

Biology

Business Administration

Chemistry

Electrical Engineering

Mathematics

Physics

Textile Chemistry

Textile Technology

Visual Design



**1984—1985****First Semester**

Saturday	September 1, 1984	Academic Year Commences
Monday	September 3	Labor Day
Tuesday	September 4	Classes Begin, Fall Semester
Monday	October 8	Columbus Day, No Classes
Tuesday	October 9	Follow Monday's Class Schedule
Monday	October 22	Mid-Semester
Monday	November 12	Veterans' Day, No Classes
Wednesday	November 21	Thanksgiving Recess Begins (after last class or lab)
Monday	November 26	Classes Resume, 8:00 AM
Tuesday	December 11	Classes End, Fall Semester
Wednesday	December 12	Study Day (No Examinations)
Thursday	December 13	Examinations Begin
Thursday	December 20	Examinations End
	December 20 through January 11, 1985	Mid-Year Recess

**Second Semester**

Wednesday	January 16, 1985	Classes Begin, Spring Semester
Monday	February 18	Washington's Birthday, No Classes
Tuesday	February 19	Follow Monday Schedule
Monday	March 4	Mid-Semester
Friday	March 8	Spring Vacation Begins (after last class or lab)
Monday	March 18	Classes Resume, 8:00 AM

Monday	April 15	Patriots' Day, No Classes
Friday	May 3	Classes End, Spring Semester
Monday	May 6	Examinations Begin
Monday	May 13	Examinations End
Sunday	June 2	Commencement
Friday	June 28	Academic Year Ends

## 1985—1986

### First Semester

Sunday	September 1, 1985	Academic Year Commences
Monday	September 2	Labor Day
Tuesday	September 3	Classes Begin, Fall Semester
Monday	October 14	Columbus Day, No Classes
Tuesday	October 15	Follow Monday's Class Schedule
Monday	October 21	Mid-Semester
Monday	November 11	Veterans' Day, No Classes
Wednesday	November 27	Thanksgiving Recess Begins (after last class or lab)
Monday	December 2	Classes Resume, 8:00 AM
Tuesday	December 10	Classes End, Fall Semester
Wednesday	December 11	Study Day (No Examinations)
Thursday	December 12	Examinations Begin
Thursday	December 19	Examinations End
	December 19 through January 10, 1986	Mid-Year Recess



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**Second Semester**

Monday	January 13	Classes Begin, Spring Semester
Wednesday	January 15	Martin Luther King, Jr.'s Birthday, No Classes
Monday	February 17	Washington's Birthday, No Classes
Tuesday	February 18	Follow Monday's Class Schedule
Monday	March 3	Mid-Semester
Friday	March 7	Spring Vacation Begins (after last class or lab)
Monday	March 17	Classes Resume, 8:00 AM
Monday	April 14	Patriots' Day, No Classes
Friday	May 2	Classes End, Spring Semester
Monday	May 5	Examinations Begin
Monday	May 12	Examinations End
Sunday	June 1	Commencement
Monday	June 30	Academic Year Ends

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**Catalogue Changes**

Because the Catalogue must be prepared well in advance of the years it covers, changes in some programs inevitably will occur. Courses as described in the Catalogue are subject to change without notice, and some listed courses are not offered each year. The "Course Listings," a publication available from the Registrar's Office shortly before registration begins each semester, provides information on classes to be offered, instructors, enrollment restrictions (for example, majors only), class hours, and room assignments. In addition, students should consult the appropriate academic unit for current information.

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Southeastern Massachusetts University is a publicly-supported, coeducational institution of higher learning, fully accredited by the New England Association of Schools and Colleges. SMU has assumed three major responsibilities within the region and the state: instruction, research, and service to the larger community of which it is an integral part.

Today's 5000-student, modern multi-faceted university traces its origins to the Bradford Durfee Textile School in Fall River and the New Bedford Textile School, both established in 1895. Locally funded at the start, the two schools drew upon state resources from 1918 onward as the cost and pace of change were too great for the two cities to support. They offered a three-year course in general cotton manufacturing and two-year courses in designing and weaving and in chemistry and dyeing. Evening courses, often tailored closely to the various mill jobs, were sometimes a requirement for employment. Added gradually to the curriculum were courses in English, economics, and accounting, the bases for our modern Colleges of Arts and Sciences and of Business and Industry.

As the northern textile industry diminished after the world wars so the textile schools changed to meet the needs of the area's industry and economy. Bradford Durfee became a Technical Institute in 1946 and a College of Technology in 1955; New Bedford became a Technical Institute in 1950, an Institute of Textiles and Technology in 1955, and New Bedford Institute of Technology in 1957. As their missions broadened, the two schools awarded their first four-year degrees, Bradford Durfee in 1948 and New Bedford in 1951. Both colleges were accredited by the New England Association of Schools and Colleges in 1961.

Several local and legislative initiatives in the 1960's steered the two colleges toward university status. A legislative act in 1960 consolidated Bradford Durfee and New Bedford into Southeastern Massachusetts Technical Institute—SMTI; The Willis-Harrington Report of 1964 reorganized Massachusetts higher education, but in so doing threatened SMTI's liberal arts and business programs. However, regional support and response prevailed, and the new legislation enabled SMTI to develop as a comprehensive educational institution. At the June 9, 1969 commencement, then Governor Francis B. Sargent signed a bill into law creating Southeastern Massachusetts University.

To find additional space for their growing enrollment and to unite the once-rival institutions, college officials sought a new campus. In 1964 ground was broken at a 710-acre site in Dartmouth, part way between the two cities, a tract of rolling farmland 60 miles from Boston, 45 miles from Hyannis or Newport, and 30 from Providence, RI. The new campus,



designed by architect Paul Rudolph, then Dean of Yale's School of Art and Architecture, saw its first classes in 1966 and continued to grow through the 1970's as its dormitories were finished and research and studio facilities came into being.

Today's SMU includes over 300 faculty members, more than 80% of whom possess a doctoral degree or its equivalent in their respective disciplines, and more than 400 other employees who help sustain the day-to-day life of the university. The faculty attracts an average of \$3 million each year from private and public sources for research.

The university's campus has acres of athletic facilities, fields, and woods surrounding its dorms, major class buildings, library-communications center, student center and research facilities—and parking for more than 4000 cars. Rising near the engineering-science complex in the mid-1980's will be a new academic center to meet SMU's needs for expansion in laboratory and research programs.

With its roots in the area's economy and its educational mission to serve the needs of both southeastern Massachusetts and the state as a whole, SMU's contemporary history is a reflection of current events. President Joseph L. Driscoll (1964-72) helped build its remarkable, award-winning campus and helped weld close ties between two rival cities and institutions. President Donald E. Walker (1972-83) helped make a new university into a strong, academically and intellectually demanding institution with a nationally and internationally recognized faculty. President William C. Wild, Jr. (1983-84) drew upon his nearly thirty-five years of experience with SMU to help shape its future. John R. Brazil (1984- ), as SMU's fourth president, offers the university and region his energy and dedication to the highest standards of academic achievement.

SMU faces the challenges of the mid-1980's from a position of strength. Its four interconnected coastal communities—Fall River, Westport, Dartmouth and New Bedford—have populations totaling 230,000, about half of Bristol county's 475,000, in an area of population growth. The region's economy, for many years depressed by the departure of the textile industry, has begun to grow again and is the focus of state development attention, and SMU is the center of much of the redevelopment planning and activity. Easily reached by interstate highways, SMU has the physical and intellectual resources to help influence the region's, the state's, and the nation's future.

# Admissions

Decisions on applications will be made by members of the admissions staff based on standards set by the faculty. Prior to entrance, applicants must have completed satisfactorily a secondary school course or its equivalent (except for "early entrance" students). A significant portion of the applicant's secondary school courses must have been of college preparatory quality and substance.

Admission to SMU is on a selective basis. The University is interested in applicants whose scholastic achievement, aptitudes, interest, character, and established study habits give promise of success in a senior college program. Qualified candidates will be admitted on a "rolling admission" basis until the capacity of the University to care properly for the students has been reached. The admissions policies of the University are in compliance with those standards recently approved by the Board of Regents.

## **Affirmative Action-Equal Opportunity**

The University is committed to an admissions process which does not discriminate against any applicant because of race, color, religion, age, sex, national origin, or handicap. Students are recruited and admitted on the basis of academic performance and promise.

The University's Affirmative Action Plan is intended to guarantee equality of opportunity in employment and education and to reduce the underrepresentation and underutilization of minority groups at the University. For all of the University's educational programs our objectives are to eliminate all barriers which may have existed in the past and achieve a representation of minority groups and women in the student body which reflects their current availability and interest. Furthermore, these individuals will be encouraged to take full advantage of all University resources which might enhance their educational experience.

## **Freshman Application Procedure**

Applicants who will have, prior to entrance, secondary school or equivalency diplomas and who have never attended degree-granting post-secondary educational institutions are eligible for consideration for freshman admission. All others are classified as transfer applicants.



**An Alternate Admissions Program: College Now**

Admission through the College Now program is available to students who have the ability, desire and motivation to benefit from the University's degree programs but have been unable to acquire the necessary academic skills to be accepted via regular admission. Enrollment is limited to approximately one hundred freshmen who enter as full-time students each September.

Students who wish to be considered for admission through College Now must follow the regular admission procedure. Upon receipt of the application additional materials will be forwarded.

**Application Fee**

A non-refundable application fee must accompany all admissions applications. The fee for permanent residents of Massachusetts is \$18.00; the fee for all others is \$25.00.

The University recognizes that these fees may present a significant financial hardship for some applicants and is prepared to waive the fee in appropriate instances. Secondary school students who are eligible for the College Board Admissions Testing Program fee waiver should have their counselors attach a copy of the waiver form to the SMU admissions application. Transfer and/or adult applicants should support their fee waiver requests with a letter from a social worker, financial aid officer, or clergy.

**Application and Transcripts**

The deadline for application is not predetermined; It will be established each year by the Admissions Committee. When it is judged that there are a sufficient number of qualified applicants for the available space in each program, admissions will be closed. Secondary-school students are advised to submit complete credentials as soon as possible after the first marking period of the senior year.

It is the responsibility of the applicant to ensure that the completed form is submitted to SMU. The school record should include the applicant's academic record for the ninth, tenth, eleventh, and at least the first marking period of the twelfth grade, and his/her class standing for those years. Unless this procedure is followed properly, applications will be returned.

**Scholastic Aptitude Test**

All applicants for freshman entrance (except adults) are required to take the Scholastic Aptitude Test given by the College Entrance Examination Board.

Arrangements for testing can be made by writing to:

College Board  
Box 592  
Princeton, N.J. 08540 or  
Box 1025  
Berkeley, Cal. 94701

Adult applicants (those who completed secondary school at least five years prior to entering SMU) may substitute the School and-College Ability Test (SCAT) for the Scholastic Aptitude Test (SAT). Regularly scheduled administrations of the SCAT will be held on the SMU campus. Candidates should contact the Admissions Office for further details.

### **Achievement Tests**

Achievement Tests are not required for admission. However, the University urges non-adult applicants for freshman entrance to submit test results in appropriate subject matter areas. The achievement tests have significant predictive value, especially in the sciences, and can be a valuable source of data in the decision process.

We suggest that applicants seek advice relative to the achievement tests from their secondary school guidance counselors.

The foreign language achievement tests are used for placement when an applicant intends to continue at SMU the study of a language begun prior to entrance. At present French, German, Italian, Latin, Russian, Spanish, and Portuguese are being offered at SMU. Since there is no CEEB achievement test offered in Portuguese, placement will be determined by the Department of Foreign Literature and Languages prior to registration.

### **Test of English as a Foreign Language**

Foreign national applicants whose native language is other than English must arrange to complete the Test of English as a Foreign Language (TOEFL), which is offered at regularly scheduled intervals throughout the world. Foreign nationals currently studying in the United States or in institutions abroad where the language of instruction is English are exempted from the Toefl requirement. Complete information concerning the TOEFL can be obtained from the College Entrance Examination board.

### **Preferred Test Dates**

Applicants should submit the required test scores as early as practicable. Since space in many of the academic programs and in the dormitories is severely limited, delay beyond the January series should be avoided. Scores on tests taken prior to the current academic year may be used with or substituted for current tests in meeting the requirement.



**Test Score Reports**

Full responsibility for arranging to complete the appropriate testing program must be assumed by each applicant. Official scores must be reported directly from CEEB headquarters. SMU's data processing system utilizes the magnetic tape reports which are supplied only by the CEEB, and applicants must request that their score reports be sent to SMU (Code No. 3786).

**Art Portfolio/Music Audition**

See College of Visual and Performing Arts.

**Interviews**

Personal interviews are not part of the admissions procedure. It is neither possible nor necessary for most applicants to be interviewed individually.

Group interviews and campus tours will be scheduled at least once a week, and appointments may be made by writing or telephoning the Admissions Office (617-999-8605). Most questions can be answered readily in an exchange of correspondence, but if a unique problem requires personal discussion, an appointment can be arranged. Complete data relating to the problem must be available at the time of the interview in order to provide a basis of intelligent discussion.

Adult applicants who would like to discuss their educational plans are encouraged to contact the Admissions Office in order that an appointment can be arranged.

**General Course Requirements**

It is expected that the successful applicant's secondary school program will include at least twelve units of college preparatory courses including the following: four units of English, two units of Social Science (including one in U.S. History), two units of Mathematics, two units of the same Foreign Language, one unit of Natural Science.

Although two units of the same foreign language are strongly recommended for all applicants, they are required only for applicants to programs within the College of Arts and Sciences (all programs).

**Specific Course Requirements**

Certain programs within the University require specific course background in addition to the general course requirements. These programs and their additional requirements are listed below.

**Chemistry, Computer Science, Engineering, Engineering Technology, Mathematics, Physics, and Textile Chemistry require:**

Three and one-half units in College Preparatory Mathematics which must include at least two units in Algebra and one-half unit in Trigonometry. Either Physics and Chemistry, one of which must be a laboratory course, or three units in Natural Science, one of which must be a laboratory course in Physics or Chemistry. Physics is strongly recommended for all engineering applicants.

**Biology, Medical Technology, Nursing and Textile Technology require:**

Three units of College Preparatory Mathematics which must include two units of Algebra. Two units of Natural Science.

**Business Administration requires:**

Three units of College Preparatory mathematics which must include two units of Algebra.

A person of extraordinary promise and talent may request admission although he or she does not meet all the requirements specified above.

**Early Entrance**

The University recognizes that superior secondary school students sometimes exhaust the curriculum offerings of their schools by the end of their junior year. These students are eligible for admissions consideration without a secondary school diploma. It is expected that they will present superior records of scholastic achievement and above average aptitude test results. Early entrance candidates should obtain a written agreement from the secondary school assuring that a diploma will be granted upon satisfactory completion of one or two semesters of college work.

**Transfer Application Procedure**

The University is very much interested in admitting qualified transfer students. Approximately one-third of the entering students each year are transfers from other colleges. The University was the first of the public four year institutions to approve the Commonwealth Transfer Compact, which facilitates transfers from the public community colleges, and endorses the transfer guidelines established by the Massachusetts State Transfer Articulation Committee.

At SMU transfer applicants are treated similarly to freshman applicants with respect to admissions, financial aid, and campus housing assignments. During the summer there is a special orientation program for all entering transfer students.



The quality and quantity of academic work completed at the previous institutions determine the amount of transfer credit awarded. Transfer applicants should submit complete credentials as soon as possible after the end of the fall semester.

The admissions requirements and procedures for transfer applicants are quite similar to those for freshman entrance. Transfer students who will have received associate or bachelor's degrees prior to entering SMU are not required to submit secondary school records. Transfer students who can present the equivalent of at least thirty semester hours of transferable credit (at the time of application) are not required to submit SAT or SCAT results. With these exceptions transfer applicants must follow the freshman application procedures as previously described.

Transfer applicants must also submit official transcripts from all post-secondary degree-granting institutions attended. Applicants enrolled in a program of study at the time of application must submit a listing of all courses in progress. Applicants are encouraged to submit letters of recommendation from an academic dean at each of the institutions at which they have been degree candidates.

### **Advanced Standing**

Transcripts of courses completed at other institutions prior to admittance will be evaluated by the Dean of the college into which the student is accepted. Transfer of credit will be recorded on the students' permanent record cards but will not be calculated in their grade point averages. Transfer credits from two-year institutions will be limited to not more than one-half of the number required for the SMU program.

The University has approved the use of the College Entrance Examination Board College Level Examination Program (CLEP). The program enables those who have reached the college level of education outside the classroom to demonstrate their achievement and to use the test results for college credit and/or placement.

For further information refer to "CLEP and Advanced Placement" under Academic Regulations.

Graduation requirements currently include, but are not restricted to, the following:

1. The satisfactory completion of all work in the major field of concentration.
2. A cumulative grade point average of not less than 2.0 (on a 4.0 scale) for all degree requirements.
3. The satisfactory completion of 60 course credits at SMU. It is expected that students will spend their junior and senior years at SMU.

### **Social Security Number**

SMU's data processing system has been programmed to use nine-digit numbers to identify applicants and students. We request that all applicants (except foreign students) submit their social security numbers for this purpose. Those who do not wish to volunteer their numbers will, of course, receive the same consideration as those who do.

Applicants who do submit their numbers can be assured that the University will respect and protect their privacy. Because these numbers are unique, their use facilitates the matching of various credentials, and we urge applicants to submit them.

### **Quality Requirements**

To be accepted for admission into any program of study at SMU, an applicant must present a record of academic achievement which is adequate as preparation for doing work on a college level. Scores on the required CEEB or SCAT test should indicate a capacity for such work. Special quality standards may be required for admission into departments in which certain aptitudes and preparation are of prime importance to the curriculum.

### **Regional Student Program**

The New England Regional Student Program enables residents of Connecticut, Maine, New Hampshire, Rhode Island, and Vermont to be given special consideration for admission to SMU in certain curricula which are not offered at the public universities in their home states. Qualified applicants under this program are given priority over other out-of-state applicants, and if accepted pay in-state tuition at SMU. Secondary school guidance counselors or the New England Board of Higher Education, Boston, MA 01984 (617-357-9620) can provide detailed information concerning the program.

### **Special Students**

Students who are not candidates for an SMU degree may be allowed to register for courses as special students. Registration is contingent upon space being available in specific courses. All requests for special student status must be directed to the Registrar's Office.

### **Testing Program**

Among the tests available on campus are the CLEP exams (see Academic Regulations section), the Adult Admissions Testing Program (AATP), Test of English as a Foreign Language (TOEFL), Challenge Exams in Nursing (CEN), Miller Analogies Test (MAT), Minnesota Engineering Test (MEAT), Doppelt Mathematical Reasoning Test (DMRT), Graduate Management Admissions Test (GMAT), Graduate Record Examination (GRE), Bilingual Fluency Examination (BFE), School and College Ability Test (SCAT) and the Massachusetts Real Estate Licensing Exams.



Pamphlets with additional information and/or registration material for any of these programs are available in the Division of Continuing Studies Office. All of the programs require registration prior to testing.

### **Upward Bound**

Upward Bound is a program designed to generate skills and motivation necessary for success in education beyond high school. The Upward Bound Program is one of many located throughout the United States, funded by the U.S. Office of Education. SMU's Upward Bound emphasizes a rigorous six-week summer residential component where the students are provided with comprehensive instruction in basic academic skills. The summer program is reinforced by an academic-year session which provides weekly tutoring and workshops in financial aid, SAT preparation, choosing a career, selecting a college, etc.

### **The Spotlight Program**

The Spotlight Program provides gifted 10th and 11th graders a challenging educational experience in a university environment and a variety of enrichment studies in the arts and sciences. Also, talented 12th grade students may enroll in university courses for college credit based on the recommendation of the high-school counselor.

### **Center for the Portuguese Speaking World**

In response to the academic and cultural interests of its predominantly Portuguese service area, SMU offers a wide diversity of courses in Portuguese Language and Literature, History, Political Science, and Sociology/Anthropology. Those course offerings which deal with Portuguese speaking nations and peoples around the world form part of the certificate program of the Center for the Portuguese Speaking World.

Successful completion of 18 credit hours in approved courses, including basic competency in the Portuguese language, and a senior honors paper, are the requirements for students wishing to receive a certificate in studies of the Portuguese Speaking World.

In addition, the Center conducts a speakers' series, an exchange program, Portuguese Cultural Week, and a Summer Institute on Portugal in cooperation with the Division of Continuing Studies.

Inquiries concerning the Certificate program or sponsored events may be directed to: Chairperson, Center for the Portuguese Speaking World, Southeastern Massachusetts University, North Dartmouth, MA 02747.

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**Center for Jewish Culture**

The Center, co-directed by Rabbi Bernard Glassman of Tifereth Israel Synagogue in New Bedford and Professor Robert Waxler of the SMU English Department, is the culmination of several programs offered at SMU over the past few years that have helped to create a climate of understanding between Jews and other ethnic and religious groups. These have included five-day Judaic Institutes which featured lectures by world-famous scholars. Centering on the modern Jewish experience, the Institutes raise issues significant to both Jews and non-Jews.

The Center initiates workshops, lectures, seminars and institutes that explore various aspects of Jewish culture and that enrich the lives of SMU students and faculty, and members of different ethnic and religious groups in the area.

**This school is authorized under Federal law to enroll nonimmigrant alien students.**

**The admissions policies of the University are in compliance with those standards approved by the Board of Regents.**



**Matriculation Fee**

A student who has been accepted for admission to SMU must submit a matriculation fee of \$50.00 in check or money order, made payable to SMU. This fee will be applied towards tuition, upon registration. Students who fail to make this payment before the designated date will not be allowed to matriculate. In the event of withdrawal, the fee will be refunded if notification is received in writing by the Director of Admissions prior to June 1.

**Tuition**

As a state-supported institution, SMU's programs and facilities are available at modest tuition rates to residents of the Commonwealth of Massachusetts. Tuition charges are as follows:

<b>Resident</b>		<b>Non-resident</b>	
Undergraduate	\$1080.00	Undergraduate	\$3432.00
Graduate	1192.00	Graduate	3492.00

The charges represent the tuition cost for a full-time student (12 credits or more) for the entire academic year. Tuition is subject to change due to the laws of the Commonwealth and the fiscal requirements of the University.

**Tuition Residency Requirements**

A "resident student" is defined as one whose legal domicile shall have been within the Commonwealth of Massachusetts for a period not less than 12 months immediately preceding the date of the applicable semester. All others are defined as "non-resident students". All students attending the university on a "student visa" will be considered as non-resident students.

No student shall be deemed to have become a resident student solely by attendance at the University. Resident students shall not lose their status as such as long as they are registered for successive semesters at the University. The President of the University is authorized to determine the residency status of all students in accordance with these policies, and his or her decision shall be final and binding.

In order to be charged as a resident student, a student must present a notarized residency form to the Bursar's Office.

Any willful misrepresentation by a student for the purpose of acquiring or retaining resident status shall be deemed sufficient cause for dismissal from the University.

A few general principles are included here to assist prospective students in considering their residency status. Usually, the domicile of a minor will be presumed to be that of the parents or guardian unless the minor is emancipated. One's domicile is the permanent home to which the student plans to return at the termination of any temporary residence elsewhere. "Permanent home" means that place which a person considers to be home either permanently or for the foreseeable future. One can have but a single domicile at any time. In changing domiciles, one retains the old domicile until fully acquiring a new one.

### **Tuition Reduction Program**

The Board of Trustees has authorized a program intended to offset raises in tuition by the awarding of tuition reductions to financially needy undergraduate day students who are legal residents of Massachusetts and U.S. citizens or eligible non-citizens as defined by the Federal guidelines for financial aid eligibility. Students must also have applied for the PELL (Basic Educational Opportunity) grant to be eligible and must demonstrate financial need as defined by Federal financial aid guidelines. These awards are made in increments up to a maximum of the full cost of tuition and are awarded by the Financial Aid Office. Eligibility is determined by demonstrated financial need on the same basis and the same application procedures and deadlines as with other University-administered aid programs.

### **Tuition Waiver for Over 60**

Students sixty years of age or over are exempt from tuition and fee charges. Applications for tuition and fee exemption may be obtained from the Bursar's Office.

### **General Fee**

All students are assessed a maximum General Fee of \$80 per year, payable with the fall semester tuition. The fee is currently used to support the men's and women's athletic programs, student government, student publications, the student radio station, and various other student related activities. For part-time students the rate is \$8.00 per credit.

### **Campus Center Fee**

A maximum \$50 per year Campus Center fee is also assessed all students, payable with the fall semester tuition. The fee is used to support the programming activities and the general administrative expenses involved in operating the Campus Center. A Board of Governors, composed of 13 students, 1 alumnus and 2 administrators, oversees the operation. For part-time students the rate is \$5.00 per credit.



**Payment Policy**

All charges are due and payable at a date set by SMU (usually two weeks prior to the start of classes each semester.) All bills will be mailed to the student's permanent address.

Any payments received after the due date indicated will be charged a \$5.00 late fee.

Students may not attend classes until all charges have been paid or deferred. Deferment exception may be given by the Dean of Students if a financial problem has been caused by University error, personal tragedy or documented medical contingency.

**Orientation Fee**

A \$15.00 Orientation Fee is assessed all freshmen and transfer students to defray the expenses of the Summer Orientation Program. In addition freshmen are required to attend a two-day, overnight program, at an approximate cost of \$23.00.

**Engineering Equipment Fee**

All students enrolled in the College of Engineering will be charged a \$50.00 fee each semester to assist with the costs of laboratory equipment.

**Health Fee**

All students are assessed a maximum \$15.00 Health Fee, payable with the fall semester tuition. This fee is used to support the on-campus Health Services, as well as limited accident insurance. Part-time students pay \$1.50 per credit.

**Mass. PIRG Fee**

All students are assessed a \$6.00 per year Mass. PIRG (Public Interest Research Group) fee payable with the fall semester tuition. This fee may be waived by completing a waiver form.

**Studio/Lab Fee**

Students registered in certain studio or laboratory courses are required to pay a \$10.00 Studio/Lab Fee.

Students registered in clinical nursing courses are required to pay a fee for liability insurance.

### **Library Fee**

All students are assessed a maximum \$30.00 per year library fee which is used to augment the Library/Learning Center. Part-time students pay \$3.00 per credit.

### **Room and Board**

Room and Board for the 1984-85 academic year is:

15 meal plan:	double room	\$3,088
	single room	3,138
19 meal plan	double room	3,315
	single room	3,365
Flexible 15 meal plan	double room	3,279
	single room	3,329
Flexible 10 meal plan	double room	3,039
	single room	3,089

Meal plans are available to non-resident students.

Further details and instructions will be forwarded upon acceptance.

Room and board rates are subject to change by the Board of Trustees.

### **Application Fee**

An \$18.00 non-refundable application fee is assessed all Massachusetts applicants, while a \$25.00 fee is assessed all non-Massachusetts applicants.

### **Commencement Fee**

A commencement fee of \$45.00 will be assessed all students in their last semester prior to receiving a degree to help defray commencement costs.

In addition a \$10.00 alumni fee will be charged. This fee provides a one-year membership in the Alumni Association. A refund may be obtained by those not wishing to participate if application is made between February 1 and February 28.



**Books and Supplies**

Cost for books and supplies vary with class and curriculum, but \$300.00 per year is an estimated average. First year Engineering students have an additional expense of from \$25.00 to \$50.00 for engineering drawing equipment and related materials. Students in the College of Visual and Performing Arts may incur some additional expenses for paints, brushes and the like.

Students registered in clinical nursing courses have an additional expense for uniforms. The students are also responsible for providing their own transportation for clinical practice.

Medical Technology seniors have additional expenses for uniforms and lab coats, malpractice insurance, and commuting to Rhode Island hospitals.

**Refunds**

A student who withdraws from SMU for any reason before a semester is completed will be granted a refund of tuition according to the refund schedule given below. A student who remits, in advance, a payment of tuition and fees and does not subsequently register will be given full refund of tuition, General Fee, Health Fee, Campus Center Fee, Library Fee, and Engineering Equipment Fee.

If a student officially withdraws after the first day of class of the fall semester, all fees are forfeited and tuition is refunded in accordance with the refund schedule. The Orientation Fee is not refundable except in special circumstances approved by the orientation counselor. All refunds are based on official withdrawal notices as dated and processed by the Registrar's Office and presented to the Bursar's Office.

**Refund Schedule for Tuition**

Within the first two weeks of the semester:	90%
During the third through sixth weeks:	60%
After the sixth week:	No Refund

## Summary of Annual Expenses

*(Exclusive of Room and Board)*

<b>Massachusetts Residents</b>	<b>Undergraduates</b>	<b>Graduates</b>
Tuition	\$1,080.00	\$1,192.00
Health Fees	15.00	15.00
Mass. PIRG Fee	6.00	6.00
General Fee	80.00	80.00
Campus Center Fee	50.00	50.00
Library Fee	30.00	30.00
Orientation Fee	38.00	38.00
Engineering Equipment Fee	100.00	100.00
Books and supplies (new students)	300.00	300.00
<b>Total</b>	<b>\$1,699.00</b>	<b>1,811.00</b>

<b>Non-Massachusetts Residents</b>	<b>Undergraduates</b>	<b>Graduates</b>
Tuition	\$3,432.00	\$3,492.00
Health Fee	15.00	15.00
Mass. PIRG Fee	6.00	6.00
General Fee	80.00	80.00
Campus Center Fee	50.00	50.00
Library Fee	30.00	30.00
Orientation Fee	38.00	38.00
Engineering Equipment Fee	100.00	100.00
Books and supplies (new students)	300.00	300.00
<b>Total</b>	<b>\$4,051.00</b>	<b>4,111.00</b>

Lab Fees of \$10.00 are assessed to some students if they are registered in an applicable course.

**All expenses are subject to change at the discretion of the Board of Regents and/or the University. Notification will occur if, and when, any such changes are approved by the SMU Board of Trustees and/or the Board of Regents.**

# Student Services

The staffs in the Division of Student Services assist students in gaining maximum educational benefit from their college experience. These offices provide a total program of assistance designed to meet the basic needs of students and to create learning experiences which encourage self-understanding and self-direction.

## **Dean of Students**

The Dean of Students directs and supervises all of the activities of the Division of Student Services in order that they meet effectively the broad educational goals of the University and the individual needs of students. In the administration of the Division, the Dean is assisted by an Associate Dean of Students who also coordinates experiential learning programs designed to enhance the self direction of students.

The Student Life Office is staffed by two Associate Deans of Students who serve in effect as University Ombudsmen, rendering assistance to all students in personal and social matters. The purpose of this office is to improve the quality of campus life by helping student groups and organizations. In addition, this office supervises the Administrative and Programming staffs of the Campus Center and Residence Halls as well as the University Chaplains.

## **University Counseling Center**

The staff of the University Counseling Center is concerned with the intellectual, social and emotional growth of students. The broad spectrum of psychological and educational support services assists students in defining their goals and developing their potential. Counseling and psychotherapy, individual or group; educational, vocational and psychological testing; structured groups and training programs are provided by trained and experienced counselors and psychologists. A consulting psychiatrist is available for evaluations, medical issues and referrals.

Many concerns are appropriate for counseling; the service is not limited to assisting only those individuals experiencing emotional stress. Some students seek information about academic requirements and the resources of the University. Some wish to talk about the choice of major, graduate schools or career opportunities. Others experience difficulty with study skills and anxiety with regard to exams. Many come to talk about relationships with others, or to talk about themselves, their hopes, fears, sexual concerns and goals. The Counseling Center offers a safe and supportive place to explore one's concerns, clarify choices and develop action plans. All counseling is strictly confidential and is provided at no charge.



The Counseling Center also maintains an educational resource library with information on graduate and undergraduate institutions and on tests required for entry. Information about choosing college majors and pursuing graduate education is also available.

The Counseling Center is located in the Auditorium Annex, upper level. Appointments may be made by calling Extension 8648, or students may see a counselor on a walk-in basis Monday mornings, 8-12 a.m. and Tuesday through Friday afternoons, 1-4 p.m..

### **Student Advisor Program (SAP)**

The Student Advisor Program (SAP) consists of trained students who are concerned with the academic and social advisement needs of fellow students. Through a student-run drop-in center on the second floor of the Campus Center, Student Advisors (S.A.'s) provide easily accessible academic information, an opportunity for students to express their concerns about their SMU experience, and opportunities to learn about the University's resources. Student Advisors also work to meet campus needs through their involvement with Orientation and Housing.

Members of the Counseling Center staff assist in the training of Student Advisors and act as consultants to SAP. For more information stop by the Campus Center SAP Office. Hours are 9:00 a.m. to 3:00 p.m.. Ext. 8809.

### **University Health Services**

The Health Office is an outpatient facility located in Phase III-A, Residence Halls. Its services are available to all students through the Student Health Fee; the hours are 8 a.m.-11 p.m., Monday-Friday.

A physician is on duty from 10:00 a.m.-12:00 Noon Monday-Friday during the academic year. The nurse practitioner's hours are 12 Noon-2 p.m. on most academic days. Three registered nurses and a secretary are also on staff. Gynecology and dermatology clinics are offered during evening hours.

The Health Office is concerned with the total well-being of the student. It is equipped to handle most medical problems students might encounter while at SMU and referrals are made to community resources when appropriate. The staff is committed to health education and disease prevention.

Basic Student Accident Insurance is provided to all students from the Health Fee. It is limited to injuries sustained on campus, traveling to and from the University and the student's home address, attending or participating in any University activity including intramural, club, inter-collegiate, Contract Learning and Work-Study. There are two optional insurance plans available which provide additional benefits.

Call Ext. 8982 or 8983 for further information.

**Safety**

Students should report to the Health Office and appropriate faculty any personal health conditions such as allergies, pregnancies and heart or respiratory problems, which would make them a high risk in certain laboratories or classes.

There are laboratories in Chemistry, Biology, Medical Technology, Physics, Ceramics and Painting that may contain or use chemicals, viruses, silica, asbestos, x-ray, radiation or animals, which under normal conditions are harmless but may affect persons with high risk conditions. Students should use caution at all times, use safety devices that are available, and report to the Health Office any unusual symptoms or illnesses which may occur while working in these areas.

**University Records Office (Registrar)**

The Director of University Records maintains the official records of all graduate and undergraduate students. Office personnel ensure that records are accurately reported and are otherwise in good order. The office conducts registration, arranges schedules of classes and examinations, enforces certain academic regulations and issues official transcripts from the University.

Petitions to receive credit toward the SMU degree for courses which have been taken elsewhere must be filed with the Registrar. The Registrar also certifies enrollment to the Social Security Administration and the United States Immigration Service.

**Confidentiality of Records**

The University annually informs students through the Student Handbook of its policy on the confidentiality of records. The policy was developed by the Governor's Commission on Privacy and Personal Data and with the Family Educational Rights and Privacy Act of 1974.

The policy is designed to protect the privacy of education records, to establish the right of students to inspect and review their education records, and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the Family Educational Rights and Privacy Act Office (FERPA) concerning alleged failures by the University to comply with the act.

Detailed procedures pertaining to student access to and confidentiality of records are available from the Office of the Dean of Students. The office also maintains a directory which lists all education records of students at the University.

The University has designated the following categories of student information as public information: student's name, school or college, major field of study, dates of attendance, home town where applicable, membership in University-curricular and extra-curricular organizations and degrees and awards received. Such information may be disclosed by the University for any purpose, at its discretion.

Currently enrolled students may withhold disclosure of any of the above categories of information. To withhold disclosure, written requests by students must be submitted to the Registrar's Office on an annual basis. The University assumes that failure on the part of any student to request the withholding of public information indicates individual approval for disclosure.

### **Veteran's Affairs Office**

The programs at SMU are approved for benefits that may still be available under the GI Bills. Students who are eligible for benefits (discharged prior to January 1, 1977) must obtain an application from their regional Veterans Administration Office or the Office of Veterans' Affairs on campus. The Veterans Administration will issue a Certificate of Eligibility which should be presented to the Office of Veterans' Affairs for certification of enrollment. It is the veteran student's responsibility to notify the Office of Veterans' Affairs of any change in course credit load.

In the Commonwealth, the definition of "Vietnam Veteran" for the purpose of State tuition exemption has been changed to increase the number of veterans eligible for this benefit.

A veteran is eligible if:

1. One has served in the Armed Forces (a) during the period beginning August 5, 1964 and ending May 7, 1975, or (b) at least 180 days of active service during the period between February 1, 1955, and August 4, 1964, (anyone awarded a Purple Heart or having a service connected disability need not have served 180 days).

2. One's service in the U. S. Armed Forces was credited to the Commonwealth of Massachusetts.



3. One is deemed qualified to attend a state institution of higher education in the Commonwealth. For further particulars, contact the Office of Veterans' Affairs (Extension 8642).

Counseling services for veterans are also provided by the Veterans' Advisor.

### **Financial Aid Office**

Financial assistance is available to an ever-increasing number of deserving students. This assistance, in the form of employment, loans, grants, scholarships, and tuition reductions, enables students to continue their education in spite of limited personal resources. The type of aid awarded is related to the financial circumstances of the individual.

Complete instructions concerning the financial aid application process are contained in the SMU Financial Aid Application form. It is the responsibility of the student who desires financial aid to obtain the necessary forms and instructions from the Financial Aid Office.

If students experience unforeseen financial difficulties at any time or have questions concerning financial aid, they should immediately contact the Financial Aid Office, Room 105 of the Foster Administration Building.

### **Financial Aid Peer Counseling**

A Financial Aid Peer Counseling Program is also available and is staffed by students who are trained in all aspects of financial aid counseling. These peer counselors are available to other students on a walk-in basis for assistance in understanding and completing the financial aid process.

### **Office of Career Planning and Placement**

This office provides career counseling for all students and placement services for seniors seeking positions in their chosen fields.

On-campus interviews are arranged with industries, businesses, government agencies and school departments. Seniors are assisted in the preparation of their placement files which include resumes, references and evaluations. Workshops are held on interviewing and job hunting techniques.

Career counseling and vocational assessment is available on an individual basis by appointment to all students. The office also maintains the most up-to-date occupational and educational information resources available in its Career Information Library. ACES, the American Career Exploration System, a computer-based information system, is also located in the Career Information Library, as well as a microfiche viewer and listings of all professional job openings throughout the State of Massachusetts provided by the Division of Employment Security. (DES). The Career Planning and Placement Office is located in the Auditorium Annex, lower level.

**Job Location and Development Program**

The Job Location & Development Program (JLD) lists part-time, temporary and summer employment. Any SMU student may register for this service which maintains current listings of employment opportunities in the SMU area. The JLD Program offers an alternative way to meet educational expenses while gaining career experience. The JLD is located in the Auditorium Annex, lower level.

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**Co-Curricular Activities**

SMU seeks to promote and foster co-curricular activities as an integral part of college life. It recognizes the value of these activities as a necessary complement to each student's academic work. Participation in out-of-class activities serves to develop greater skills of individual responsibility, leadership, and initiative.

Annual editions of the SMU Student Handbook list the numerous athletic, literary, pre-professional, and recreational clubs and activities available to students.

**Student Government**

Student Government functions on the SMU campus through the Student Senate and represents all students by popular election. Students are encouraged to participate actively in student government and are requested to vote in all student elections. The Student Senate must approve the formation of new organizations.

This body is the voice of the students in school affairs as members are appointed by the President of the Senate to serve on various faculty and administrative committees. The Senate meets regularly every Monday night at 5:30 in the Senate Chambers, second floor of the Campus Center. All are welcome.

**Student Judiciary**

The Student Judiciary is a system of courts or judicial agencies that provides the protection of due process to any student or student organization at SMU charged with an action calling for discipline.

There are four ascending levels of student judicial authority. The first is the Residence Hall Judiciary. The second is the Court of General Affairs which has jurisdiction over lesser student infractions and is an appeal body for living unit and governing group judiciaries. Third is the University Court, which

is the final appellate body on all cases not involving suspension, dismissal or assessment of grade penalty in matters of academic dishonesty. It has jurisdiction over cases of all-university significance; academic rights and freedoms; violation or interpretation of Student Government Constitution or policies of Student Senate and the constitutionality of its actions. It is the first court where a judgment of dismissal or suspension from the university can be handed down.

The University Discipline Board is the final appeal agency on all penalties of suspension or dismissal. These penalties include special cases of discipline arising from extraordinary or emergency conditions and cases involving a student appeal of a failing grade given on the basis of a charge of academic dishonesty made by a department or a college and by the University Court.

The student role in this process is a powerful one. Numerically, they are the largest segment of any with the one exception of the University Discipline Board where they are equal with the faculty. All courts on the lower levels are completely staffed by students. The University Court has five students, one of whom is the Chief Justice; four faculty and two administrators. The University Discipline Board has four students, four faculty and one administrator, the Dean of Students, who votes only in the case of a tie.

The authority of these judicial agencies is complete. Only the Board of Trustees can rescind that authority.

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## **Academic Support Services**

### **Library**

The Library supports and supplements all programs of instruction and research at the University. By cooperating with the faculty in developing the resources which meet curriculum requirements and by remaining sensitive to the needs of students, the Library is constantly expanding and adapting its collections and services for the whole community.

In addition to a book collection of more than 300,000 volumes, the Library subscribes to 2,000 periodicals and is a selective depository for U. S. Government documents. Audio-visual and television resources supplement these printed materials and are an important part of a complete literature search. The Library staff is always prepared to teach the skills needed to use these resources and to direct students to the appropriate services.



SMU students also have available the collections of several other academic libraries in southeastern Massachusetts. Direct telephone communication and a delivery service link four of these libraries, giving SMU students almost immediate access to additional materials not held by the Library.

The Library supplies the leisure and extracurricular information needs of its users. For this reason a special browsing area has been created with books recently added to the Library's holdings, topical interest materials and games and puzzles. Space is also available for small group meetings.

By providing the information and then by teaching the skills necessary to communicate it, the Library is a vital part of both formal education and life-long learning.

### **Audio Visual**

The Audio Visual Department is located in the Library Communications Center and functions as a service agency to the students, faculty and staff. The Media Services area provides facilities and software for the educational benefit of all members of the academic community. Twenty-four-hour notice is requested when scheduling equipment in order to insure its availability. In addition, a 2,800 record collection is located in the Listening Room. Students may use the listening facilities as available. Records do not circulate except with faculty permission.

A large collection of Nursing Media Materials is located at the Circulation Desk in the gallery area of the first floor in the Library.

Another service provided by the Media Services area is the A/V Resource Center. This facility is responsible for scheduling and playbacks of video tapes and films from the department's collection. Television monitors are located in the library carrels near the A/V Desk, in various classrooms, and in other areas.

Any art work related to classroom presentations can be done through the Graphics Center located behind Studio One in the basement of the Library. The center also includes a Photography Department with dark rooms for both color slide and black and white print production.

### **Television Department**

Instructional video tapes are made by the Television Department in cooperation with students, faculty and staff in the TV studios located in the Library Communications Center.

Students make seminar presentations on video tape as part of their coursework, as well as TV commercials for advertising classes, management and psychology role-playing and special graduate work.

Faculty members make use of the facility to give lab demonstrations which require close-up viewing for large classes, to interview guest lecturers not available for a particular class time, and to make specially paced programs for students to use in conjunction with regular class work.

Staff members make information available to the campus on video tape in a variety of areas, such as how to put together a resume, and general orientation information.

Anyone wanting to discuss program ideas is welcome to meet with the Television staff.

### **Library Intern Program**

In addition to the regular Library services, there are student interns paid from Library Fees assessed students whose sole job is to assist students. The Library Intern Program provides new and alternative services, such as research assistance, help with displays, bibliographies, literature searches, film series and orientation.

Interns may be reached by way of the Reference Desk on the second floor of the Library.

### **Computer Services**

Computer Services provides instructional, research and administrative computer services to the University community.

A DECSYSTEM-20 and a VAX 11/780 supply timesharing service to up to 160 simultaneous users via terminals located in the Academic Computer Services area of the Library Communications Center and in many departmental locations throughout the University. The system supports programming in many languages such as APL, BASIC, COBOL, FORTRAN, PASCAL, and assembler language.

Also available is a library of application programs to assist in using the system as an aid to learning business, engineering, social science, and other subjects. Many micro-computers are also available for instructional support. All students at SMU have access to these computer services.

Courses in computing and information processing are offered by the departments of Electrical and Computer Engineering, Computer and Information Science and the College of Business and Industry. The Academic

Computer Services staff conducts clinics, seminars, and workshops to assist the academic community in its use of computer facilities.

The University is strongly committed to support Computer Fluency for all students.

### **Cooperative Learning Center**

The Cooperative Learning Center (CLC) is an academic support service which provides peer tutoring and small group review sessions free of charge for all SMU students. The area centers of the CLC are in the following convenient locations:

Writing - Library, first floor, Ext. 8710

Reading - Library, first floor, Ext. 8710

Science - Group II, Room 217B, Ext. 8718

Mathematics - Group I, ground floor, Ext. 8716

Disabled Student Services -Group I, ground floor, Ext. 8711

Students needing help with any other SMU course will be provided with a qualified, trained tutor with a background in both the course and the relevant subject matter.

In addition, the CLC offers special services in the following areas:

- academic advising
- research and term paper writing
- resume writing
- study skills workshops
- workshops to improve reading speed and comprehension
- library skills workshops
- individualized services for disabled students
- group review study sessions

The Cooperative Learning Center is open daily from 8:30 a.m. to 4:30 p.m.

### **Office of Disabled Student Services**

The Office of Disabled Student Services, a part of the Cooperative Learning Center, is a support organization helping students who are handicapped to pursue their educational goals while adjusting fully to their new environment.

Located in the basement of Group I, the DSS provides the following services on an individual basis:

Mobility Assistance

Note Taking

Peer Counseling

Advocacy and Support



Helping with academic procedures such as orientation, financial aid, residence hall arrangements and placement, the office plugs into all university resources giving an added dimension to these services. Beyond satisfying the immediate needs of students, the DSS organizes and holds workshops addressing issues of sensitivity and awareness within the University.

The Office of Disabled Student Services is open from 8:30 a.m. to 4:30 p.m. daily; evening appointments can be arranged on request.

### **College Now Program**

College Now is an admissions and support program for students whose educational achievement has been hampered as a result of social, cultural or economic inequities.

From the moment of admission to graduation, students enrolled at SMU through the College Now Program are provided with essential supportive services. All College Now freshman students participate in a summer program prior to their freshman year in which they receive assistance and guidance in developing and sharpening those basic academic skills which are vital to their success at the University. After the summer program, students are enrolled in regular SMU courses and are expected to maintain a satisfactory academic standing.

All College Now students are assigned a counselor during their 4 or 5 year program who will assist students with selections of courses, credit evaluation and career guidance and development.

**All rules may be subject to change at any time in accordance with existing and hereafter adopted University policies.**

## **Coursework**

### **Course Credits**

The basic units of teaching at SMU are courses. A course is a segment of an academic or professional field which provides insight and understanding of those topics, skills, and approaches to knowledge which are determined by the University to be important to students' educational development, personal growth, and/or career preparation.

Each course at SMU carries the number of credit hours specified in the course description. Courses ordinarily meet three hours per week in each semester. There is however, a wide range of course and credit arrangements including one credit laboratory and 15-credit practice teaching courses available at SMU. Please consult the Individual learning section of this Handbook for further exceptions to the usual pattern.

### **Course Load**

#### **A. Minimum:**

With the exception of graduating seniors in their final semester, no undergraduate full-time degree candidate may register for fewer than nine course credits without the approval of the appropriate academic dean.

#### **B. Maximum:**

No undergraduate degree candidate may register for more than 18 credits in a semester without the approval of the appropriate dean. A student may accumulate a maximum of 30 credits in excess of degree requirements.

### **Course Level and Number System**

Courses are listed by number and title. Courses are numbered according to the following system:

- A. 100-level: introductory courses
- B. 200-level: intermediate courses
- C. 300-400 level: advanced and specialized courses normally requiring prerequisites, including seminars, honors, practica, theses, and independent study.
- D. 500-600 level graduate courses, open to undergraduates only with the permission of the instructor.

**Transfer of Credit**

Requests to receive credit for courses taken at other institutions prior to admission should be filed with the Admissions Office and approved by the Dean of the appropriate College or a designee. Such requests must be accompanied by official transcripts and such other documents as required by the Dean of the appropriate college. Transfer credits will be limited for students from two-year institutions to a maximum of one-half of the number for the SMU program. Credits should be so indicated by the Department. Students entering with degrees from Mass. Community Colleges will be awarded credit according to the Transfer Compact.

A student registered at SMU who wishes to enroll in courses in another college for transfer credit to SMU should have such courses approved in advance by the appropriate Department Chairperson and College Dean in order to insure the transferability of such credits. On completion of these courses, an official transcript should be forwarded to the Registrar. A C-grade is the minimum acceptable grade for receiving transfer credit at SMU. Transfer coursework for which credit is given will be recorded on the student's permanent record card without a grade designation. It will not be calculated in the student's grade point average.

**Waiver of Courses**

If students demonstrate proficiency in areas that are part of their degree program of study and have the approval of the faculty specializing in that area, they may petition through the Department Chairperson to the Dean of the appropriate College to have the course(s) for which the proficiency is proven (by examination, portfolio review, successful completion of a previous program of studies for which credit may not have been received, etc.) waived as a requirement for the fulfillment of their degrees. When a course is waived as a degree requirement, the student is still responsible for the successful completion of a number of credits equal to those assigned to the waived course. Usually, the credits can be earned as free electives, although in some instances it may be necessary for students to complete a specified substitute course to successfully complete their program of studies.

**Repeating of Courses**

Students may repeat individual courses once but only as space is available and if they have the consent of their department Chairperson and their advisors. Only the repeat course grade shall enter into calculation of the cumulative grade point average presented for satisfaction of a particular degree requirement. However, all courses attempted by a student will be part of the permanent record. Students receive credit only once for courses taken more than once.



## **Registration**

Registration is the process by which students enroll in courses each semester. Returning students are responsible for registering during the established registration period. New and transfer students register according to the most recent instruction from the Office of University Records. Registration will not be considered effective until all financial obligations to SMU are met.

## **Enrollment**

### **Add/Drop**

Up to the end of the first week (five class days) of the semester, a student may officially Add courses or Drop courses without record. In the case of courses that meet only once a week, the Add/Drop period shall be two weeks. No one shall enroll for Contract Learning, Independent Study, and Honors Theses credits after the second week (ten class days) of the semester without the permission of the appropriate Dean or his/her designee.

### **Withdrawal from Courses**

1. A student who withdraws from a course after the Add/Drop period and up to the completion of the seventh week of the semester shall receive a W grade. A W grade does not affect a student's GPA.

2. *Applies to all students who began their academic work in fall semester 1981 and thereafter:*

After the completion of the seventh week of the semester, a student who withdraws from a course shall receive a grade of WF or WP as appropriate. More than 24 credits of W, WP, or WF makes the student subject to dismissal from the University through the action of the Dean of the student's College. Grades of WP and WF do not affect a student's GPA.

3. A student who does not complete all course requirements shall receive an I or an appropriate grade. If the notation is an I, an appropriate grade will be assigned on completion of the missing work. If the student does not complete the course requirements within twelve months from the recording of the "I", the I notation will be converted to an F(I).

## Degree Requirements

### Degrees and Majors

SMU offers the degrees of Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Music, and Bachelor of Science. Each degree requires being accepted into and fulfilling the requirements of a major. By being accepted into and fulfilling the requirements of two majors, a student may graduate with one degree and a dual major.

### Major Requirements

*Applies to all students who began their academic work in fall semester 1982 and thereafter.*

1. In order to graduate from SMU, a student must declare and successfully meet all requirements for a specified major within a recognized department or an approved inter-departmental major.
2. While some programs require declaration of a major early in a student's college career, all SMU students shall be required to declare a major no later than registration period for the Fall semester of the Junior year. Formal declaration shall be made to the appropriate Chairperson, or as the case may require (e.g., multi-disciplinary studies), the Dean.
3. Students whose overall grade point average is above the dismissal grade point average shall be allowed to declare a major. Students whose overall grade point average is below the dismissal grade point average shall be dismissed.
4. Each major shall consist of at least 30 credits in appropriate courses carrying departmental approval.
5. A 2.0 minimum grade point average in the major shall be required for graduation.
6. Each major should require a seminar equivalent or special individual project. Such a project may be incorporated in a specific course or carry separate credit.
7. Individual departments may exceed these requirements for the major.

### **Minor Requirements**

*Applies to all students who began their academic work in fall semester 1981 and thereafter.*

1. A department may establish a minor, providing that it consists of at least 18 credits, of which 9 must be at the upper division level. Individual departments will designate their upper division courses. The same course may count both for minor and for distribution requirements.
2. Any degree candidate who has earned at least 54 credits, with a cumulative grade point average of 2.0 and with a 2.5 grade point average in the major, may request from the department in question admission to a minor.
3. Successful completion of a minor will be so noted on the student's transcript and diploma.
4. A department offering a minor may establish other specific requirements.

### **Distribution**

SMU also requires students to complete general distribution requirements according to the degree sought. These distribution requirements vary among colleges and majors and with year of graduation.

For degree requirements for the year in which the student expects to graduate, he or she should consult with the major Department. Additional graduation degree requirements are:

1. The satisfactory completion of all work required in the student's major field of concentration.
2. *Applies to all students who began academic work in fall semester 1982 and thereafter:*  
A cumulative grade point average of not less than 2.0 for all credits submitted for the degree. In addition, the cumulative grade point average for courses taken in the major shall be set by the department at not less than 2.0. A student may take additional credits not submitted for the degree.
3. The satisfactory completion of 60 course credits at SMU. It is expected that students will spend their junior and senior years at SMU. Students may be granted permission by the appropriate chairperson and the college dean to earn up to 30 credits at another institution during their junior and senior years.
4. The satisfactory completion of at least 30 course credits in advanced and specialized courses at or under the sponsorship of SMU.



**Departmental Requirements**

An academic Department, with the approval of the Dean of its College, may establish academic requirements more restrictive than or in addition to University requirements.

**Academic Advising**

1. Each degree candidate will be assigned a faculty advisor.
2. Students who have declared a major will be assigned an advisor within their major.
3. It is the responsibility of each Department Chairperson to establish annually the faculty advising program for majors in the department.
4. The Dean of the appropriate College will be responsible for coordinating the assignment of faculty advisors to students who have not declared a major.
5. The student is responsible for contacting the advisor periodically; at least once each semester prior to registration. The advisor shall make an effort to be available to advisees.
6. The advisor will, at that time, inform each advisee of distribution and major academic requirements. The student, not the advisor, is responsible for seeing that his/her program fulfills any and all requirements for the degree. The advisor will also discuss related educational concerns, such as graduate schools and job opportunities.
7. The advisor will receive a copy of the student's grades following each semester.
8. Any student who falls below a 2.5 grade point average must get the advisor's signature for the next registration.
9. The advisor can call a conference with the student at any time, with reasonable notice.
10. Any college or department may formulate additional advising procedures for its majors.

## Grades and Grading System

Grades are determined and assigned by instructors according to the guidelines indicated below. Each student's academic achievement and fulfillment of degree requirements are reflected in the transcripts which are issued at the end of each semester.

The SMU grading system includes plus and minus grades which are used in computing grade point averages.

The grading system includes the following letter grades and quality points:

### **A** Excellent

Quality Points

A+...4.0

A ...4.0

A-...3.7

### **C** Satisfactory

Quality Points

C+...2.3

C ...2.0

C-...1.7

### **B** Good

Quality points

B+...3.3

B ...3.0

B-...2.7

### **D** Marginal

Quality Points

D+...1.3

D...1.0

D-... .7

D is the lowest grade acceptable for credit.

### **F** Unsatisfactory

0 Quality Points

Failure to meet minimum standards either on the basis of work submitted or not submitted. No credit awarded. 0 quality points awarded for purpose of computing G.P.A.. Credits as indicated in course description.

### **F(I)**

0 Quality Points

An F assigned for failure to complete a course within a year after the assignment of an I notation.

**W**

A student who withdraws from a course after the Add/Drop period, and up to the completion of seventh week of the semester shall receive a W grade. A W grade does not affect a student's GPA.

**WP**

Official withdrawal by the student while passing after the completion of the seventh week of the semester. No credit awarded. Not included in grade point average.

**WF**

Official withdrawal by the student while failing after the completion of the seventh week of the semester. No credit awarded. Not included in grade point average.

**CR**

A passing grade. Credit given upon satisfactory completion of a contract under Contract Learning Program. Not included in grade point average. This grade may also be assigned as a passing grade under grade appeal procedure.

**NC**

A failing grade. Under Contract Learning Program no credit awarded. For purposes of computing G.P.A.: Credits as agreed upon by contract.

**I**

Work Incomplete. Given only when the Instructor thinks that the student will complete the course within a year from the recording of the "I." Can be changed only to a letter grade, not a WF or WP. Changes to F (I) if work not completed within a year of recording of the "I."

**P**

Under Pass/Fail option. See A,B,C,D, definitions above. If any apply, P grade obtains. Not figured in grade point average.

**IP**

In Progress. Notation used in special cases to indicate that academic progress covers more than one term and that a grade will be assigned on the completion of the task involved. The "IP" notation is replaced upon receipt of the official grade. If, at graduation, the "IP" notation is still in effect, the grade of "NC" will be entered in its place.



**NR**

Grade not reported by instructor at time of grade processing.

**F**

Under pass/fail option. See "F" definition above. No credit awarded. 0 quality points awarded, for purposes of computing G.P.A. Credits as indicated in course description.

**AU**

Audit. Registration and permission of Instructor needed for auditing. This notation is used when no examinations, evaluation, or credit are involved.

**Pass/Fail Option**

Sophomores, Juniors, and Seniors may select a Pass/Fail Option for one course per semester (up to maximum of four courses) under the following regulations:

It shall be open in all courses except:

1. any course specified as a degree requirement;
2. any course in a student's major, unless his or her Department rules otherwise;
3. any course used to satisfy the distribution requirements of the degree program in which the student is enrolled.

**Selection of Pass/Fail Option**

Students will be given through Add/Drop period to exercise the option, which shall then be irrevocable. Only the student and the Registrar shall know that an option has been selected. Grading practice, vis-a-vis faculty and students, will be identical to the usual marking procedure.

The burden of selecting a proper course under Pass/Fail rules shall be borne by the student. Any doubt shall be resolved by consultation with the Dean of the College in which he or she is enrolled. If the student elects a course for which he or she is not eligible under the Pass/Fail Option, he or she will be subject to the usual marking practices.

Grading practices under this option are as follows:

1. A Pass/Fail student who does passing (i.e., A through D-) work in a course shall be given a grade of P (Pass). Passing a course shall earn a student graduation credits but shall not be counted in his or her cumulative average. Failure in a course will be 0 quality points and will be counted in the G.P.A.
2. The Registrar shall be required to keep a separate record of the grades obtained in the Pass/Fail courses and will issue this record only on the request of the student.
3. The transcripts will contain the Pass/Fail notation, but the grade actually achieved will be kept on file in the Registrar's Office.

### **Scholastic Standing**

A grade point average (G.P.A.) is determined for each student at the end of each term's program of courses. A G.P.A. is computed by multiplying the credit of each SMU course by the quality points of grade received in that course. The sum of the above is then divided by the total number of credits in courses in which the student enrolled. Grades of P, CR, I, W, IP, AU not included.

A cumulative grade point average is the average of all the SMU grades other than of P, CR, I, W, IP, AU, of the student. Grades of F, F(I), and NC earn zero quality. Such grades are included in the student's average according to the number of credits specified in the course description.

Whether a one or two semester course, the grade received at the end of each semester stands as the final grade for the semester. For certain special coursework (honors, research programs, etc.) in which it is extremely difficult to assess academic programs on the basis of one term, the notation "IP" (In Progress) is acceptable on an interim basis. The "IP" notation is replaced upon receipt of the official grade.

The Statute of Limitations on all grade requests is one year from the date that the grade was placed on the student's record. In extreme and exceptional cases, on request of the student and recommendation of faculty, the instructor and/or the appropriate college dean may authorize changes in grades which are over one year old as of the date the grade was placed on the student's record.

### **Grade Appeal**

#### **Basis for Grade Appeal**

- A. Only final course grades are subject to appeal.
- B. For purposes of appeal a final course grade may be alleged to be:
  - 1. unfair because of the unequal application of grading standards within the course resulting in a grade at least 1.3 quality points less than the grade the appellant maintains should have been given, or,
  - 2. In error because of a clerical or computational error. In such cases the appeal is solely on the basis of the clerical or the computational error with respect to the grade.
- C. The responsibility for initiating an appeal rests with the student who received the disputed grade.
- D. The responsibility for developing and presenting evidence that the grade given is unfair or in error rests with the student making the appeal.

**Procedures**

A. Any student who feels that an unfair grade or a grade that is in error (as defined in I, B 1 and 2 above) has been given to him or her shall attempt to resolve the problem through informal discussion with the instructor prior to initiating the formal grade appeal procedure.

B. If the question of a disputed grade cannot be resolved through informal consultation between student and instructor, the student, if he or she wishes to make a formal appeal, must submit to the instructor in writing the evidentiary basis for the formal appeal. This must be done within the first 20 class days of the following semester, with a copy to the chairperson of the Department of the faculty member. In the case of a graduating senior, this must be done within 10 days of notification to the student by the Registrar of the final grade. The faculty member shall respond in writing to this formal appeal within ten class days of receipt of the appeal, or in the case of a graduating senior, within 10 calendar days.

C. If no resolution has been achieved within 10 class days of initiating a formal appeal, the student may then request in writing that the chairperson of the Department of the faculty member arrange a hearing before the Departmental Appeal Committee. The Departmental Appeal Committee shall set a date for hearing the evidence within 15 class days from the date of the request. (In the case of a graduating senior the date shall be within 15 calendar days.)

D. Evidence of clerical or mechanical error in the computation of the grade, if established by the preponderance of evidence to the satisfaction of the Departmental Appeal Committee, shall result in an automatic change to the clerically or computationally correct grade.

E. 1. If the student alleges that a grade is unfair, the student has the responsibility to establish by a preponderance of evidence to the satisfaction of the Departmental Appeal Committee that the grade is unfair because of the unequal application of grading standards within the course resulting in a grade at least 1.3 quality points less than the grade the student would have received had grading standards been applied within the course in a non-discriminatory manner.

2. If the grade is established as unfair the faculty member shall be asked to change the grade. If the faculty member is unwilling to change the grade in a way satisfactory to the student the grade shall be changed to the notation CR (a notation that gives credit for the course but has no effect on the student's cumulative average).

3. If the grade is not established as unfair, the student's transcript shall show that the grade was appealed but not found unfair.

4. The Departmental Appeal Committee shall make decisions by majority vote.



F. The number of days indicated shall be considered as a maximum, and every effort shall be made to expedite the process. However, the time limits specified may be extended by mutual agreement of the appellant and the faculty member against whom the appeal has been directed, or in the case of extenuating circumstances by his or her chairperson.

G. The hearing before the Departmental Appeal Committee shall be a closed session. The appellant and the faculty member against whom the appeal has been directed shall be given the opportunity to be present and to be heard. In addition to presenting material evidence, each party may present, examine and cross-examine witnesses.

H. Evidence purporting to show prejudice which might have motivated discriminatory treatment of the student may be presented but shall be regarded only as evidence of possible motivation and shall not be regarded as evidence that an unfair grade was, in fact, given to the student.

I. Decisions of the Departmental Appeal Committee shall be in writing and shall include supporting reasons. Copies of all decisions shall be given to both parties. The decisions of the Departmental Appeal Committee shall be final.

### **Composition of Appeal Committee**

A. The Departmental Appeal Committee will be selected when the need arises. It shall be composed of the Department Chairperson and two faculty members selected as follows:

1. the Department Chairperson shall prepare a list of six faculty members from the Department (in the case where there are not six uninvolved faculty members from the Department, faculty members from other Departments in the same Academic Council area shall be used to complete the list);
2. the student making the appeal and the faculty member whose grade is being appealed shall each be given a copy of the list and each shall be permitted to strike not more than two names;
3. from the remaining names the Department Chairperson shall select the two faculty members to serve on the Committee.

B. If the Chairperson of the Department is the faculty member whose grade is being appealed, a full time faculty member from the Department shall be selected to serve as a substitute for the Department Chairperson by giving a list of full time faculty in the Department to the student making the appeal and to the faculty member whose grade is being appealed and allowing each to strike from the list an equal number of names until only one or two persons are left. If two are left by this process one shall be selected by lot.

IV. The Faculty Senate will study the results of the appeal process and may modify, continue or discontinue the procedures as it deems appropriate. The grade appeal process will continue in full force through 1985-86.

## **Academic Standing**

### **Class Standing**

#### **Freshman**

Up to and including 30 SMU credits or 1/4 of graduation credit requirements in the student's degree program.

#### **Sophomore**

From 31 to 59 SMU earned/awarded or 1/2 of graduation credit requirements in student's degree program.

#### **Junior**

From 60 to 89 SMU earned/awarded or 3/4 of graduation credit requirements in student's degree program.

#### **Senior**

More than 89 SMU earned/awarded credits.

### **Dean's List**

Following the completion of each semester, the Registrar submits to the Academic Dean a "Dean's List" consisting of the names of students whose academic record for the semester is of high quality.

To be eligible for the Dean's List a student must achieve a grade point average of at least 3.2 or higher for the semester in a minimum of 12 course credits, excluding courses taken the Pass-Fail option and Contract Learning.

### **President's List**

Full-time students (minimum 12 credits earned per semester) who have achieved a minimum G.P.A. of 3.8, with no 'I' grades outstanding, will be named to the President's list for the given semester. This accomplishment will be noted on the student's transcript.

### **Graduation with Distinction**

1. Students with 90 or more SMU credits are eligible for graduation with distinction provided they achieve a cumulative grade point average of:

3.200 to 3.499 Distinction

3.500 to 3.799 High Distinction

3.800 to 4.000 Highest Distinction

2. Students with 60 to 89 SMU course credits are eligible for graduation with distinction provided they achieve a cumulative grade point average of:

3.400 to 3.699 Distinction

3.700 to 3.899 High Distinction

3.900 to 4.000 Highest Distinction

3. Students with fewer than 60 SMU course credits are not eligible for graduation with distinction.

Graduation with "Distinction," with "High Distinction," or with "Highest Distinction" is inscribed on the student's diploma. Graduation with distinction is based on all SMU work including the final semester.

### **Departmental Honors**

Several Departments allow qualified students to subscribe to programs leading to Honors in the major field. Students satisfactorily completing the departmental requirements for Honors in the Major will, upon graduation, have their diplomas so inscribed and be so designated on the Graduation Programs.

a. Participants shall have a minimum GPA of 3.0 for all course work. Departments may require higher minima and, in addition, may set minimum GPA's in the majors. GPA's will normally be determined after the fifth semester.

b. Departments will notify all eligible candidates by the end of their Junior year. Potential participants shall follow departmental guidelines for entry into the Honors program.

c. Departmental Honors Program will include an appropriate end product, normally a project or thesis. A maximum of six (6) credit hours may be awarded for completion of the project/thesis. Departments shall develop procedures for approval of participants' proposals.

d. A faculty sponsor or honors advisor shall advise an honors candidate, according to departmental or program guidelines. An evaluation committee, which shall be multidisciplinary in nature, shall be established according to departmental or program guidelines. This committee shall evaluate the completed honors project/thesis and determine if the work meets standards for honors.

### **Academic Probation**

Any student having a cumulative grade point average below 2.0 after the completion of 30 credits will be placed on academic probation and will be so notified by an appropriate notation on the student's transcript. The purpose of academic probation is to alert the student to the possibility of academic dismissal as described in the section below. It will be the student's responsibility to take remedial action after this warning.



### Academic Dismissal

*Applies to all students who began academic work in fall 1981 and thereafter:*

A student shall be dismissed for unsatisfactory academic performance. An "unsatisfactory academic performance" is one in which a student's cumulative grade point average falls below the following standards:

SMU Awarded Credits	Cumulative G.P.A. Requirements	SMU Awarded Credits	Cumulative G.P.A. Requirements
20	1.350	60	1.750
25	1.400	65	1.775
30	1.450	70	1.800
35	1.500	75	1.825
40	1.550	80	1.850
45	1.600	85	1.875
50	1.650	90	1.900
55	1.700		

\*Includes all transfer credits, CLEP credits, prior learning credits, and all SMU attempted credits. SMU attempted credits are those for which a grade has been entered, excluding those for which the notation is W, I, AU, IP and NR. SMU attempted credits are so designated on the SMU transcript. Transfer credits, CLEP credits and prior learning credits appear in the SMU transcript as the total under "transfer credits." At the time of dismissal the conditions of readmission shall be stipulated by the appropriate College Dean in consultation with the Department Chairperson. No student will be dismissed after only one semester at S M U , or prior to having attempted at least 20 SMU credits.

### Financial Aid Standards

Following is the minimum credit achievement schedule for a student to maintain eligibility for financial aid:

Years Completed	Credits Earned
1	15
2	30
3	51
4	72
5	96
6	120
7	130

Standards may be waived by the appropriate dean upon presentation of evidence demonstrating an exceptional physical or psychological circumstance or a catastrophic situation which significantly contributed to the inability of the student to maintain acceptable academic progress in all but one or two semesters of his or her program. Each case will be reviewed individually by the Dean of Students or his or her designee, or, in the case of Continuing Studies students, by the Dean of Continuing Studies or his or her designee.

Students who have been academically dismissed from an undergraduate college and who apply for conditional acceptance in the DCS are eligible for financial aid if the conditions of the acceptance are fully specified by the Dean of the College in which the student will major. The conditions must include a specified number of credits in which the student must attain the acceptable academic progress standard. Continued eligibility will depend on full compliance with all of the conditions of acceptance.

A probationary period of eligibility of one academic year is provided for students transferring from one degree program to another which has a major requirement of an acceptable GPA higher than the previous degree program.

A probationary period of one academic year is provided for students transferring from another institution with a lower standard than the equivalent program at SMU.

### **Continuing Education Standards**

Part-time students are required to register for a minimum of 6 credits per semester in order to receive federal financial aid. Following is the minimum achievement schedule for a student to retain federal financial aid eligibility:

Years Completed	Credits Earned
1	12
2	24
3	36
4	48
5	60
6	72
7	96
8	108
9	120

## **Extracurricular Participation**

### **University**

Students who are not degree candidates or who have been placed on academic probation are not allowed to serve on University Committees, Student Government Organizations, or to represent the University in Intercollegiate Athletics.

### **Athletic**

The director of athletics may recommend to the council of Academic Deans academic requirements more restrictive than or in addition to University requirements if such changes are necessary for membership in Intercollegiate Association.

### **Student Organizations**

A student group which governs a particular student activity, with the approval of the Dean of Students, may require academic performance of its student members which is greater than that which is required by the University for remaining in good standing.

## **Academic Standards**

### **Academic Dishonesty**

A student found guilty of academic dishonesty is subject to severe disciplinary action which may include expulsion from the University. Refer to Student Handbook for due process.

### **Plagiarism**

All students entering SMU are expected to maintain high standards of academic integrity and scholarly practice. Plagiarism, whether as a result of failure to understand proper scholarly procedure or as an act of intentional dishonesty, is not allowed.

Plagiarism is defined as: An attempt by a student to represent the work of another as his/her own. This includes copying the answers of another student in an examination; submitting or copying or substantially restating the work of another person or persons in an oral or written work without citing the appropriate source; and collaborating with someone else in an academic endeavor without acknowledging that contribution.

Penalties assessed by the faculty member for plagiarism generally consist of a reprimand, a lowering of a grade or failure in the course in which the alleged plagiarism took place, a requirement to resubmit the work in a more acceptable form, or any combination of these.

An instructor, if s/he considers the offense especially serious, may, instead of assessing a penalty, refer the matter to the SMU Student Judiciary. When a student is penalized for plagiarism, it shall be understood by all parties concerned that the student has the right to appeal the instructor's decision to the University Court.



## Student Status

### Change of Academic Major or College

Requests for Change of Academic Major or College must be approved by the Department Chairpersons involved and the Dean of the College to which the student is transferring.

### Leave of Absence

A student may request of the appropriate College Dean a leave of absence for a period no longer than two calendar years. Students on leave of absence may return within the stipulated period by writing to the College Dean at least 4 weeks prior to the first day of classes in the semester of return. The College Dean may specify an earlier notification deadline in limited enrollment programs. Students who are on leaves of absence who exceed their stipulated time on leave will be considered to have withdrawn.

### Withdrawal

A student who wishes to withdraw from S.M.U. must file a Withdrawal Notice Form with the Registrar, who will inform the Dean of the student's College. Failure to follow this procedure will jeopardize the student's readmission. [A student who officially withdraws shall receive a W in each course. (See Grading System.)] If a student does not reenter the University in the following semester but plans to at some later time, he or she must apply for a leave of absence.

Veterans who withdraw are urged to consult the Coordinator of Veterans Affairs on Campus.

### Readmission Procedure

1. For students who are in good standing and who officially withdrew, readmission shall be by the Registrar, if there is no change of major and if space is available.
2. For students whose academic status was unsatisfactory\* or who had uncertain status\*\* or were making insufficient progress toward a degree when they withdrew; and for students who wish to return in a different major, *readmission shall be by the College Dean.*
3. For students who have graduated and wish to enroll for a second degree and for students who do not officially withdraw, the *Admissions Office will readmit only after specific recommendations on such students are elicited from the Admissions office from the appropriate College Dean.*

\*UNSATISFACTORY refers to students on probation or academically dismissed.

\*\*UNCERTAIN STATUS refers to students with more than 25% "I" or "W" grades or similar situations in their records.

## **Class Attendance**

Students are expected to be present at all scheduled activities related to courses in which they are enrolled. Students are responsible for the course work and assignments missed by any absences. They must take the initiative in making up any work missed and finding out about any assignments made during their absence. Extended absences for medical or personal reasons should be reported to the Office of Student Life.

A class is considered cancelled if the instructor does not report within ten minutes from the beginning of the class period. Individual faculty members are responsible for informing students of any special attendance rules for that course and the penalties for violating them. Faculty members are solely responsible for the enforcement of these rules.

## **Financial Obligations**

Any student who has an outstanding financial obligation to the University will not be considered officially registered for courses. The obligations include tuition, fees, housing charges, Campus Shop balance, Library fines, loan balances, parking fines, etc. Financial clearance must be obtained from the Bursar's Office.

## **Requests for Transcripts**

Students are entitled to three free transcripts of their college records. Additional transcripts will be prepared upon request at a charge of one dollar (\$1.00) each. When a single request is for more than one copy of a transcript, there will be a charge of one dollar (\$1.00) for the first and thirty-five cents (\$.35) for each additional copy. Requests for transcripts must be made in writing to the Registrar.

Students who expect to meet requirements for their degrees in May are required to file with the Registrar, by the previous January 1st, a notice of Graduation Eligibility. Appropriate forms will be available from the Registrar.

## **Other Learning Opportunities**

The various curricula are designed to meet the interests and the needs of those who enter the University. Many students will, however, elect to supplement their programs with individually initiated learning experiences. Opportunities for such self-expression are varied and include: Directed Study, Independent Study (faculty supervised research into areas of study outside of the current curriculum), Contract Learning (non-traditional with an approved sponsoring agency), and Cross-Registration (selection of courses from one or more public and private colleges in the region). Some students will elect to create their own curricula by taking advantage of the opportunities afforded by the Multidisciplinary Studies Program ( self-initiated interdepartmental and/or interdisciplinary major programs ).

**Advanced Placement**

The University recognizes that ever-increasing numbers of students complete appropriate college level studies in secondary school. Advanced Placement and college credit are awarded to students presenting Advanced Placement Examination grades of three or higher. The AP exams are offered by the College Entrance Examination Board. Such course credits may be used to satisfy degree requirements.

**Contract Learning**

1. Contract Learning is the program which enables students to earn academic credits for experiential learning projects formulated with the advice and consent of the faculty.
2. The program is open to all degree candidates who in general should be juniors or seniors. Students below the junior level who can establish their capability for a proposed project may participate in the program.
3. The normal contract should be for three credits. Projects proposing a greater number of credit hours should be scrutinized with extra care.
4. Contract Learning credits are considered as part of the normal student credit load and subject to University policy with regard to credit hour limitations. During the Add/Drop period the student may drop the contract. Up to five weeks in the semester the student may increase the credit hours for the contract, subject to the same approval procedures as for the original proposal.
5. In order to receive credit for a contract, the student must submit to the faculty sponsor a written articulation of the contracts' results. Such a document, whose nature is to be determined by the sponsoring faculty member, might, for example, include the following: a) how objectives were met, b) how personal improvement has been stimulated, c) how the contract relates to his or her academic experience, d) how the contract could be improved for students who pursue similar projects in the future.
6. A student may take up to 6 credits of contract learning toward an SMU undergraduate degree. With the approval of the student's College Dean, a student may take up to 1/8 of SMU graduation credits under contract learning. (Thus, if a student earns all 120 credits at SMU, he/she may take up to 15 credits under contract learning credits. Supervision of students doing projects under Contract Learning shall in all cases exclude individuals who are undergraduate degree candidates at Southeastern Massachusetts University. contracts may also not be supervised by a faculty sponsor nor a sponsoring department chairperson.

For a detailed review of this learning opportunity please consult the university brochure on Contract Learning.



## **CLEP**

The University has approved the use of the College Entrance Examination Board College Level Examination Program (CLEP). The program enables those who have reached the college level of education outside the classroom to demonstrate their achievement and to use the test results for college credit and/or placement.

The equivalency of CLEP examinations to SMU courses shall be determined by the subject matter department. One semester course credit (usually 3) or two semesters' course credits (usually 6) may be awarded for a grade at or above the fiftieth percentile on a CLEP Subject Examination (CEEB designates each as covering one or two semesters.) Such credits may be used to satisfy distribution requirements or may be used as elective credits. Six credits each will be awarded for a grade at or above the fiftieth percentile on any of the CLEP General Examinations. These credits shall not be used in addition to Subject Examination credits in the same area. They may be applied only to satisfy distribution requirements or as elective credits outside the major field of a degree candidate. CLEP credits may not be used to duplicate credits for coursework taken at SMU or elsewhere.

CLEP credits are defined as Transfer rather than SMU credits. As transfer credits, they will be reviewed to insure that they are acceptable according to SMU standards. No more than 30 credits earned by CLEP Examination may be used to satisfy SMU degree requirements.

### **Directed Study**

Students who wish to take courses which are not being given in a particular semester may enroll in a Directed Study Program in order to do so. In Directed Study, faculty members must agree to provide students with close supervision in accomplishing the same course objectives which would have been accomplished had the student taken the course on a regular class basis. Permission for Directed Study must be obtained from the subject/course faculty member, major Department Chairperson, and Dean involved after consultation with the Faculty Advisor. Forms for enrolling in Directed Study are available at the Registrar's Office. Directed Study courses will be designated as such on the student's transcript.

### **Independent Study**

Upper Division students may request to do Independent Study for up to twelve (12) semester hours of credit (maximum allowed for entire academic career) upon recommendation of the Faculty Advisor, Department Chairperson, and Faculty Sponsor. The approval of the student's Academic Dean is required. The student must submit a written proposal and outline of the program of study to be undertaken, which, if approved by the Sponsor and the Department Chairperson, will become a guide for evaluating the student's performance and accomplishment.

The student will be held responsible for meeting the requirements of the Independent Study as outlined and approved, and the Sponsor will assume responsibility for coordinating the Independent Study, evaluating its results, and determining an appropriate grade. Independent Study will only be approved for research into areas of study that do not duplicate the University's current curriculum of courses.

### **Military Service Training**

For Military Service School training, credit may be awarded according to the recommendations contained in the most recent Guide to the Evaluation of Educational Experience in the Armed Services of the American Council on Education. These credits will be applied only outside the major field of a degree candidate. CLEP Subject Examinations may be used to establish proficiency within proposed major field as part of the preadmission process.

### **Multidisciplinary Studies Major**

The Multidisciplinary Studies major affords a student the opportunity to design an individual program around a specific goal (Pre-Medicine, Pre-Law, etc.) or problem (Ethnic Studies, Urban Studies, Environmental Studies, etc.). This program is limited to students in the College of Arts and Sciences. However, this does not limit the student to courses offered only in the College of Arts and Sciences.

The requirements for the Multidisciplinary Studies major are as follows:

1. General requirements for the B.A. Degree (or B.S. Degree, as the case may be) must be satisfied.
2. The student must obtain a faculty member to act as Program Advisor in lieu of a Department Chairperson.
3. To enroll as a candidate for a Multidisciplinary Studies major the student must, by no later than the end of the Junior year, file with the Dean of the College a proposal which has been approved by a Faculty Advisor and which includes a minimum of 30 credits in advanced courses, thus creating the student's own "major." The student becomes a candidate for the Multidisciplinary Studies major when the proposal is approved by the Dean.
4. Any subsequent changes in the recognized program of studies must be approved by the student's Faculty Advisor and by the Dean.
5. The individual program of studies will appear on (1) final transcript and (2) diploma.

### **SACHEM Cross-Registration**

SMU students may cross-register for courses at other SACHEM (Southeastern Association for the Cooperation in Higher Education in Massachusetts) institutions on a space available, prior approval basis. Schools involved in the program in addition to SMU are:

Bridgewater State College	Massasoit Community College
Stonehill College	Massachusetts Maritime Academy
Bristol Community College	Swain School of Design
Cape Cod Community College	Dean Junior College

There is a suspension of tuition and fees provided that the matriculated student is registered full-time at his home institution. Further information and appropriate forms may be obtained in the Registrar's Office.



## **Alumni Association**

The SMU Alumni Association represents the interests of more than 17,000 graduates in 48 states and in more than 25 foreign countries.

Serving as liason between the University and its former students, the Alumni Association provides opportunities for people to get involved in shaping the future of Southeastern Massachusetts University.

Its members are dedicated to helping SMU students—past, present, and future.

## **Athletics**

### **Intercollegiate Sports**

SMU has a complete intercollegiate sports program for men in baseball, basketball, cross country, fencing, golf, ice hockey, soccer, swimming and diving, tennis and track.

Presently the intercollegiate program for women includes basketball, cross country, fencing, field hockey, swimming, tennis, track and field, volleyball, water basketball and co-ed softball.

### **Instructional Courses**

Non-credit courses are offered at convenient times for all interested students in the following: ballet, modern jazz dancing, tennis, slimnastics, swimming, first aid, lifesaving, springboard diving, swim fitness and CPR. Cheerleading opportunities are also available to interested women students.

### **Athletic Facilities**

Twenty acres of beautifully landscaped playing area comprise the outdoor athletic facilities at SMU.

Included in this area are thirteen championship plexipave tennis courts, two softball fields, four practice fields, two baseball diamonds, two soccer fields, an all-weather 400 meter track and a field hockey area.

The Francis Tripp Athletic Center houses locker rooms, showers, equipment rooms, first aid areas, faculty and staff rooms, offices and a classroom, as well as gymnasium and pools. The gymnasium contains three adjoining basketball courts which may be individually separated. The gymnasium also contains six rows of electrically-powered bleachers which can turn it into a field house accommdating three thousand spectators.

Swimming facilities include a 75' x 44' racing pool and a diving pool equipped with two one-meter boards and one three-meter board. The balcony can comfortably seat 500 people.



### **Conference Memberships**

#### **Men**

SMU is a member of the National Collegiate Athletic Association (NCAA), Eastern College Athletic Conference (ECAC), New England Intercollegiate Golf Association (NEIGA), New England Lawn Tennis Association (NELTA), New England Intercollegiate Soccer League (NEISL), New England Intercollegiate Swimming Association (NEISA), National Intramural Association (NIA), New England Intercollegiate Amateur Athletic Association and New England College Athletic Conference (NECAC).

#### **Women**

SMU is a member of the National Collegiate Athletic Association (NCAA), Eastern College Athletic Conference (ECAC), the Eastern Association for Intercollegiate Athletics of Women, the Massachusetts Association of Intercollegiate Athletics for Women, New England Intercollegiate Track Association for Women, New England Women's Intercollegiate Fencing Association and New England Women's Intercollegiate Swimming Association.

### **Campus Center**

The University Campus Center is the home of many student organizations and campus services such as the Campus Shop, arcade, poolroom, a bank, functions reservation office, Rathskellar, main cafeteria, deli shop, snack bar, stereo listening lounge, Sunset Room, and Ticket/Information Booth.

The Campus Center is the community center for all the members of the university family: students, faculty, staff, administration, alumni and guests.

### **Child Care Center**

The Child Care Center serves students, faculty and staff children, who may be between 2 years and 9 months and 6 years old. Hours are from 7:30 a.m. to 4:30 p.m. on all days when the University is in session.

### **Dining Services**

Several Dining Services are available. A Residence Dining Hall serves SMU students on a fifteen-meal a week plan, Monday through Friday, a nineteen-meal a week plan, Monday through Sunday, and an any fifteen of nineteen offered, Monday through Sunday. A La Carte service is available in the cafeteria or snack bar in the Campus Center, Monday through Friday. Automatic vendors are conveniently located for off-hour service. Party and banquet catering may be arranged with the Scheduling and Functions Clerk at the Campus Center. All dining services are handled by a management firm for the University.

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## **Housing**

Residence facilities consist of 10- and 12- person suites with double and single rooms clustered around a common living room/kitchenette. One or two bathrooms are included in each suite. Recreation, mail, laundry, over-night guest facilities and Head Resident quarters are part of each house. All residents use the dining service at the University Dining Hall located close to the university residences.

The Housing Office also maintains an up-to-date listing of off-campus apartments and rooms for students. It cannot and does not supervise or assume responsibility for off-campus accommodations. The Off-Campus Housing Office is open from 9:00 a.m. to 1:00 p.m. on Saturdays, January through October.

## **Use of University Facilities**

University organizations may use university facilities for business, cultural or social events. Priority will be given to regularly-scheduled classes or special classes, then to student organizations, faculty and administrative meetings and, lastly, non-university connected organizations. These events will be listed in the Master Calendar maintained by the Scheduling Office.

To publicize campus events, the university publishes two monthly events calendars. The Board of Governors Monthly Calendar is circulated largely within the university.

The University Calendar of Events is mailed each month to more than 6,500 members of the SMU Community: faculty, staff, area alumni and other friends of the university, high schools, libraries and senior citizens centers.

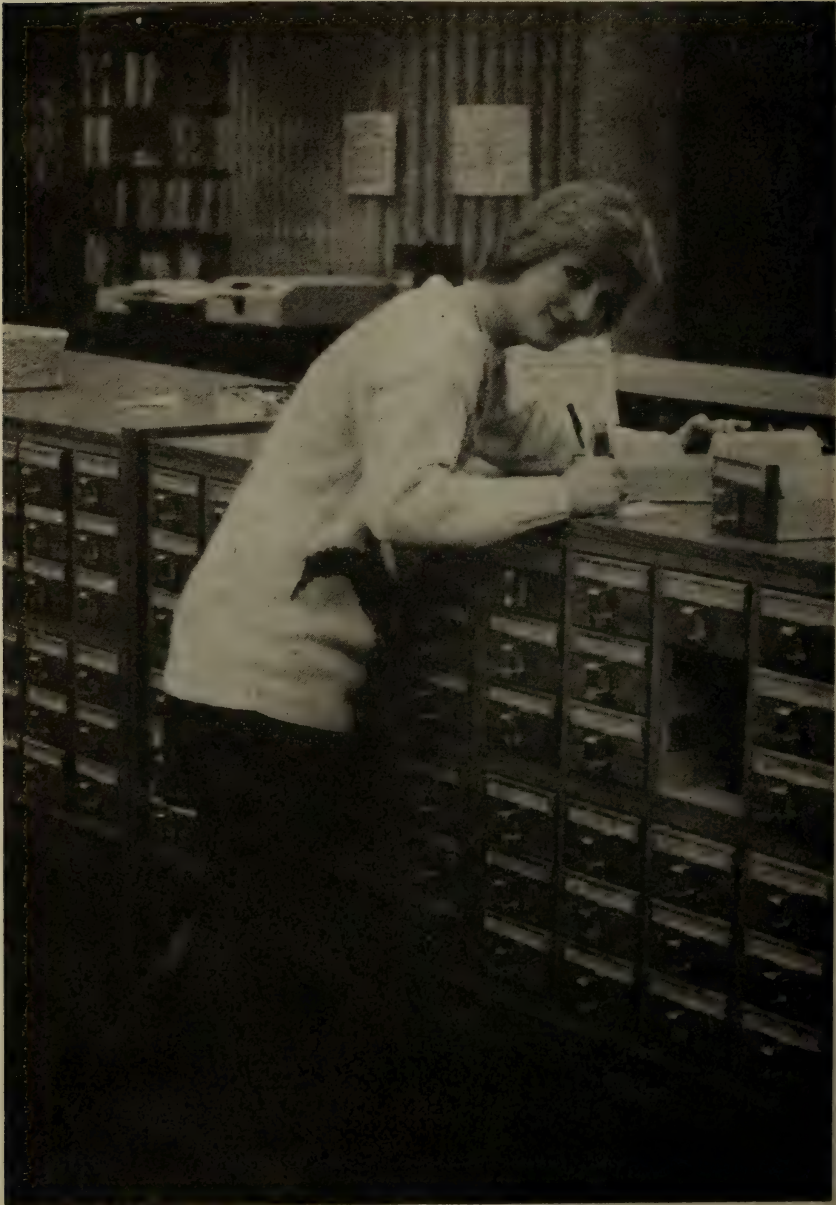
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**The Graduate School**

The SMU Graduate School offers courses leading to Master's degrees in Biology, Chemistry, Electrical Engineering, Mathematics, Physics, Textile Chemistry, Textile Technology, and Visual Design. Graduate degrees in Business Administration, (MBA), Medical Laboratory Science (MLS), and Art Education (MAE) are offered through the Division of Continuing Studies. For detailed information please consult the Bulletin of the Graduate School, available from the Dean of the Graduate School, and the current Continuing Studies Bulletin.



# College of Arts and Sciences



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Students in the College of Arts and Sciences may select their major fields of study from among the following: Biology, Chemistry, Computer and Information Science, Economics, English, Foreign Literature and Languages (French, German, Portuguese, Spanish), History, Humanities and Social Sciences, Mathematics, Medical Technology, Multidisciplinary Studies, Philosophy, Physics, Political Science, Psychology and Sociology/Anthropology.

Majors in Biology, Chemistry, Computer and Information Science, Medical Technology and Physics are candidates for the Bachelor of Science degree. Majors in Mathematics may elect to be candidates for either the Bachelor of Arts or the Bachelor of Science degree. All other majors are candidates for the Bachelor of Arts degree.

The college also offers minor programs in Economics, English, Foreign Literature and Language, Judaic Studies, History, Philosophy, Physics, Sociology and Anthropology, and Women's Studies.

Although the University does not offer degrees in Education and Pre-Medical studies, students interested in Education can take sufficient courses to receive State Certification, and students intending to enter medical school can plan an appropriate program of study through SMU's Pre-Medical Program with the help of its Advisory Committee. There are also Pre-Law and Pre-MBA Advisory Committees.

All students in the College of Arts and Sciences are required to see their advisors before registering each semester. They will not be permitted to register without a signed advisor's form.

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## **Requirements for Bachelor of Arts Degree**

**6 credits: Freshman English, ENG 101, 102**

**6 credits: Literature (except English majors)**

English Literature, literature in a foreign language or foreign literature in translation. English and Foreign Literature and Languages Departments shall specify which courses satisfy the requirements.

**9 credits: Natural Science**

Courses taught in Chemistry, Biology, Medical Technology, and Physics.

**9 credits: Humanities**

The credits must not be taken in a student's major field. No more than 6 credits from any one field. Choose from: 1. History 2. Philosophy (including logic) 3. Art and Music (excluding applied courses)

**12 credits Social Science**

The credits must not be taken in a student's major field. No more than 6 credits from any one field. Choose from 1. Economics 2. Political Science 3. Psychology 4. Sociology/Anthropology.

Women's Studies courses receive either Social-Science or Humanities distribution credit depending upon the discipline of the course with which they are cross-listed.

**Department Requirements**

Every student must complete at least thirty semester credits of work in his major field. For details see section under major program.

**Free Electives**

A sufficient number of courses must be elected so that the earned credits total a minimum of 120. Certain majors require more than 120 credits.

**Quality Requirement**

A cumulative grade point average of at least 2.00 out of a possible 4.00 is required of all students. A grade point average of at least 2.00 is also required in courses in the major field.

**Foreign Language Requirement**

All students must satisfy a foreign language requirement for the Bachelor of Arts degree in one of the following ways:

1. A satisfactory score on the ETS Achievement Test, the Advanced Placement Test, the Advanced Placement Literature Test, the CLEP Examination or the TOEFL Examination, the last two, when combined with a writing sample, an oral examination, and the written permission of the chairperson of the Department of Foreign Literature and Languages.
2. Completion of course 202 in a language at SMU.
3. Satisfactory performance in both oral and written SMU proficiency tests, if a student has fluency in French, German, Italian, Latin, Portuguese, Russian or Spanish.

Entering students will be granted advanced standing in the language of their choice on the basis of their scores on the SMU Proficiency Test or one of the tests in #1 above and grades in high school. A student who has received advanced standing or has satisfied the language requirement by passing the appropriate test must take the credit equivalent in electives to attain the 120 credits needed for graduation.



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## Requirements for the Bachelor of Science Degree

### **6 credits: Freshman English ENG 101,102**

All first-year students are required to take Freshman English, a two-semester course in the basic skills of written communication and critical reading.

### **6 credits: Literature**

English literature, literature in a foreign language, or literature in translation. The Departments of English and Foreign Literature and Languages shall specify which courses satisfy this requirement.

### **18 credits: Humanities-Social Sciences**

These credits are to be taken from the areas of Humanities and Social Sciences listed below, with a minimum of six credits from each area. The credits may not be taken in a student's major field.

#### **Humanities**

1. History
2. Philosophy (including Logic)
3. Art and Music (excluding applied courses)
4. Foreign Language (excluding Literature)

#### **Social Sciences**

1. Economics
2. Political Science
3. Psychology
4. Sociology

Women's Studies courses receive either Social-Science or Humanities distribution credit, depending on the discipline of the course with which they are cross-listed.

### **Department Requirements**

Every student must complete at least thirty semester credits of work in his major field. For details see section under major program.

### **Free Electives**

A sufficient number of courses must be elected so that the earned credits total a minimum of 120. Certain majors require more than 120 credits.

### **Quality Requirement**

A cumulative grade point average of at least 2.00 out of a possible 4.00 is required of all students. A grade point average of at least 2.00 is also required in courses in the major field.

## Faculty and Fields of Interest

**Yukio Asato** microbial genetics

**Ronald Campbell** parasitology

**LeBaron Colt** taxonomy and distribution of microalgae

**Donald S. Douglas** comparative physiology

**Robert K. Edgar** diatom systematics and ecology, microscopy

**Robert Griffith** physiology and endocrinology of fish

**James G. Hoff** marine ecology, fish biology

**Richard M. Ibara** physiological ecology of fishes

**Frederick Kazama** mycology  
marine microbiology, cell  
ultra-structure

**Robert Leamnson** cell biology,  
virology

**Barton M. Matsumoto** biological  
control and insect ecology

**Sanford A. Moss** general biology,  
apiculture, elasmobranch and teleost  
morphology and behavior

**Donald J. Mulcare** developmental  
biology

**Francis X. O'Brien (chairperson)**  
marine invertebrates

**Henry S. Parker** marine ecology,  
aquaculture, marine macroalgae

**Dorothy Reed** biophysics, bacterial plasmids

**John J. Reardon** ecology of coastal zone and dune environment

**Norman H. Sasseville** anatomy  
and physiology

**James R. Sears** ecology of marine  
algae

**Jefferson Turner** biological oceanography, marine plankton

**Robert Wilson** computer analysis  
of behavior

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## Biology Major: General Biology Option

The biology major provides opportunities for building the foundations of a career in one of the many specialties in private industry and in federal and state agencies which employ biologists. The student who elects the General Biology Option may, through appropriate selection of electives, prepare for admission to medical, dental and veterinary colleges and for admission to graduate work in the life sciences. Increasing numbers of students elect to major in Biology as a means of providing themselves with a general framework of ideas concerning the interactions of living things. A substantial number of these students proceed towards vocational objectives which do not require a specialist's knowledge of Biology.

Students who may eventually pursue graduate studies are urged to elect foreign languages and mathematics courses only after consulting with an advisor. Students contemplating graduate school studies should elect analytic geometry and calculus and should elect courses which provide a foundation in statistics, use of computers and in design of experiments and analysis of data. In many areas of biology a substantial background in physics, electronics, meteorology or geology may be desirable.

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## Requirements

First Year (Proposed Sequence)				Semester Credits:	First	Second
BO	121	131	Biology of Organisms I with lab		4	
BO	122	132	Biology of Organisms II with lab			4
CH	151	152	Principles of Modern Chemistry		3	3
CH	163	164	Quantitative Chemistry		2	2
ENG	101	102	Freshman English		3	3
MA	111*	112*	Analytic Geometry and Calculus		4	4
					16	16

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\*Math course to be selected in consultation with your advisor. MA 111-112 is recommended for students whose math background is good, and is needed if Physics 111-112 is to be taken in the second year, rather than Physics 101-102. MA 105-106, Technical Calculus, may be substituted. MA 101-102, Elements of College Math, is permitted for students whose math background is weak.

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Second Year (Proposed Sequence)				Semester Credits:		First	Second
BO	210	211	Biology of Populations (with lab)				4
BO	234	244	Biology of Cells (with lab)			4	
CH	251	252	Organic Chemistry			3	3
CH	265	266	Organic Chemistry Lab			1	1
PH	101	102	**Introduction to Physics I and II			3	3
			Humanities or Social Science			3	3
			Elective (FREE)			3	3
						17	17

\*\*Physics 107, 108 Basic Physics may be substituted for introductory Physics, Physics 111-112.

### Third and Fourth Years

Course selection for the third and fourth years of the biology major must be determined in consultation with an advisor. During the third and fourth year all majors are required to elect at least 18 credits in upper division biology courses. Upper division courses in physics, chemistry, engineering or mathematics may be substituted with the written approval of the advisor and the department chairperson prior to registration in the course.

Biology majors are required successfully to complete a minimum of 12 credits in upper division biology courses in order to be certified for graduation.

The requirements of the College of Arts and Sciences must also be met prior to graduation.

### Biology and Physical Science Electives for General Biology Option

Eighteen (18) credits should be elected from the following list of courses. Other upper division courses in mathematics, chemistry, physics, engineering, geology and biology may be used to fulfill upper division requirements in biology with prior written approval of advisor and chairperson.

				Credits
BO	221	222	Anatomy and Physiology I and II	8
BO	231		General Genetics	3
BO	241		General Genetics Laboratory	1
BO	314		General Ecology	4
BO	317		Biology of Invertebrate Animals	4
BO	318		General Entomology	4
BO	320		Embryology	4

BO	321	General Microbiology	4
BO	327	Molecular Biology	4
BO	331	Advanced Genetics	3
BO	350	Survey of Plant Kingdom	4
BO	370	Animal Physiology	4
BO	409	Directed Study	3
BO	411	Proseminar	3*
BO	415	Comparative Vertebrate Anatomy	4
BO	421	Developmental Biology	4
BO	424	Biology of Animal Parasites	4
BO	430	Design of Experiments	4
BO	434	Plant Physiology	4
BO	440	441 Research Project	2-2
BO	451	Environmental Health	3
BO	460	Biological Transmission Electron Microscope	4
BO	470	Introductory Mycology	4
BO	509	Directed Study	3
BO	518	Biogeography	3
BO	520	Animal Behavior	3

## **Biology and Physical Science Electives for Marine Biology and Coastal Zone Ecology Option**

The Marine Environment Option in Biology is designed to meet the needs of students who aspire to careers in ecology, marine biology, fisheries biology and biological oceanography. Students who elect the Marine Environment Option are urged to plan their program in close cooperation with their advisor. Facility in mathematics, chemistry and foreign languages is desirable. Russian, German or French are preferred language elective. Biology majors who elect the Marine Environment Option have an opportunity to elect marine-oriented courses during their junior and senior years and must meet college degree requirements for the B.S. degree.

Students who have completed the first two years of the biology major may elect to concentrate in courses dealing with the ecology of the coastal zone, its estuaries and inshore waters.

In addition to fulfilling all requirements for general biology, the marine biology option major must take a minimum of one course from each of the following categories of courses:

I	II	III
Biology of Sharks	Biology of Algae	Bio. Oceanography
Biology of Fishes	Marine Microbiology	Estuarine Ecology
Adv. Ichthyology	Bio. Animal Parasites	Aquaculture
Biology of Invertebrates		Environ. Physiology
Adv. Biol. Invertebrates		of Marine Animals

Eighteen (18) credits should be elected from the following list of junior and senior level courses. Other upper division courses in mathematics, chemistry, physics, engineering, geology and biology may be used to fulfill upper division requirements in biology with prior written approval of the advisor and chairperson.

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			Credits
BO	314	General Ecology	4
BO	315	Biology of Algae	4
BO	316	Descriptive Oceanography	3
BO	317	Biology of Invertebrate Animals	4
BO	321	General Microbiology	4
BO	370	Animal Physiology	4
BO	411	Proseminar, Current Topics in Biology	3*
BO	413	Biology of Fishes	4
BO	415	Comparative Vertebrate Anatomy	4
BO	421	Developmental Biology	4
BO	424	Biology of Animal Parasites	4
BO	428	Aquaculture	3
BO	430	Design of Experiments	4
BO	440 441	Research Project	2-2
BO	451	Environmental Health	3
BO	454	Biology of Sharks	3
BO	470	Introductory Mycology	4
BO	471	Marine Microbiology	4
BO	517	Advanced Biology of Invertebrate Animals	4
BO	518	Biogeography	3
BO	520	Animal Behavior	3
BO	531	Advanced Ichthyology	4
BO	535	Analysis of Biological Data	4
BO	545	Biological Oceanography	4

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\*Maximum credits allowed for Biology elective.  
Beginning with class of 1983.



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## Biology Courses

**BO 101 3 credits****General Biology I**

The content of this course deals with the basic concepts of biology and their implications in human affairs. Not offered for credit to biology majors.

Lecture 3 hours.

**BO 102 3 credits****General Biology II**

Continuation of BO 101. These courses may be elected by students wishing to fulfill the requirement of six semester hours in the natural sciences. Not offered for credit to biology majors.

Lecture 3 hours

Prerequisite: BO 101 or permission of instructor.

**BO 103 3 credits****Topics in Biology**

Study of specific areas of biological science such as Human Genetics, Man and Microbes, and the Insect World. Not offered for credit to biology majors.

Prerequisite: BO 101 or permission of instructor

Lecture 3 hours

**BO 110 3 credits****Biology of Human Reproduction**

Study of the reproductive process from a biological point of view, emphasizing the anatomy and physiology of reproduction and the factors affecting this process. Not offered for credit to biology majors. Prerequisite: BO 101 or permission of instructor.

**BO 111 4 credits****Introduction to Human Physiology**

Introduction to the general physiological principles involved in human body functions with homeostasis as the unifying theme. Not offered for credit to biology majors. Lecture 4 hours/Fall Semester.

**BO 112 3 credits****The Ocean Environment**

The study of the ocean environment as an integrated eco-system: The biology of marine organisms and the related physical, chemical and geological processes of the sea with attention given to man's impact by exploitation of marine resources and pollution. Not offered for credit to biology majors.

Lecture 3 hours.

**BO 121, 122 3-3 credits****Biology of Organisms I, II**

The first course for the biology major is an introduction to the world of living things and a consideration of their structure, function, and behavioral adaptations

During the initial half of this two-semester course, the student is exposed to the diversity and evolutionary relationships of organisms. The second semester covers the functional and adaptive processes of living organisms with emphasis on solutions to common problems of survival. Lecture 3 hours/Fall-Spring Semesters.

**BO 131, 132 1 credit****Biology of Organisms Laboratory I, II**

The biology of organisms laboratory courses cover two semesters and area closely synchronized to the biology of organisms lecture course (BO 121, 122). The first semester is a survey of the world of organisms involving experimentation and observational procedures of some major groups of organisms. The second semester emphasizes the functional aspects of organisms primarily through experimentation.

Laboratory Lecture 1 hour

Laboratory 2 hours/Fall-Spring Semesters

**BO 141 3 credits****• Introduction to Ecology**

An introduction to the structure and metabolism of ecosystems especially as they relate to human affairs. Topics such as energy and materials flow in ecosystems, biological interactions (competition, predation), ecosystem evolution and population structure and dynamics will be examined as the foundations for investigating problems of human demography, epidemiology, food, energy and pollution. Not offered for credit to biology majors. Lecture 3 hours.

**BO 151, 152 3 credits****Fundamentals of Biology I, II**

The first course in biology for the nursing major is a rigorous two semester course that meets three hours per week. The first semester is spent in exploring the diversity of life and in comparing similarities and differences among the various groups of organisms. Consideration of the requirements of the individual organism as a functional entity. The second semester is spent in analyzing gene function, cellular function and control mechanisms and the contribution of the individual to the population and the consequences of the population to the species.

Lecture 3 hours/Fall-Spring Semesters

**BO 210 3 credits****Biology of Populations**

Populations are examined as fundamental evolutionary and ecological units of organization and function with emphasis upon Mendelian and population genetics, evolutionary mechanisms, speciation, adaptations and strategies at the population level, growth and regulation of population size, distribution patterns, biological interactions, and energy and materials flow through communities.

Lecture 3 hours/Spring Semester

**BO 211 1 credit****Biology of Populations Laboratory**

Laboratory and field observations are used to examine selected aspects of the ecological and evolutionary characteristics of biological populations. Emphasis is given to quantitative observations supported by a student-computer interactive approach to the simulation of population behavior and data analysis. Topics include sampling and Poisson, binomial and normal distributions, the genetic behavior of Hardy-Weinberg equilibrated and non-equilibrated populations, models of phenotypic variability and simple and age-structured population growth, and the spatial and temporal distribution of populations.

Lecture 2 hours/Spring Semester

**BO 216 3 credits****Biology of Aging**

The biological background to the aging process will be presented. This will include a description of the theories of aging and the developmental and physiological changes that occur throughout the aging process.

Lecture 3 hours

Prerequisite: BO 101

**BO 221 3 credits****Anatomy and Physiology I**

A systematic study of the human body emphasizing structure and function.

Lecture 3 hours/Fall Semester

Prerequisite: BO 121, 124

**BO 222 3 credits****Anatomy and Physiology II**

Continuation of BO 221.

Lecture 3 hours/Spring Semester

Prerequisite: BO 221



**BO 223 1 credit****Anatomy and Physiology Laboratory I**

Emphasis is placed on methods of measuring physiological processes.

Study of body structure is accomplished by dissection of animal specimens and by the use of tissue materials.

Laboratory Lecture 1 hour

Laboratory 2 hours/Fall Semester

Prerequisite: BO 121, 124

**BO 224 1 credit****Anatomy and Physiology Laboratory II**

Continuation of BO 223.

Laboratory Lecture 1 hour

Laboratory 2 hours/Spring Semester

Prerequisite: BO 223

**BO 234 3 credits****Biology of Cells**

An inquiry is made into the structures and function of cells. This study includes chemical composition, control mechanisms, and energy transformations on the cellular level.

Lecture 3 hours/Fall Semester

Prerequisite: Sophomore standing in Biology

**BO 244 1 credit****Biology of Cells Laboratory**

A laboratory correlated with BO 234 which should be taken concurrently.

Lecture 1 hour/Laboratory 2 hours

**BO 252 4 credits****Medical Microbiology**

Fundamentals of microbiology is presented to prepare students interested in health science fields. Topics included are basic microbiology, control of microorganisms, host resistance and pathogenic microorganisms.

Lecture 3 hours

Laboratory Lecture 1 hour

Laboratory 2 hours/Fall Semester

Prerequisite: Open only to students enrolled in the College of Nursing.

**BO 314 4 credits****General Ecology**

General ecology considers the general field of interrelationships between organisms and their environments with emphasis on the biology of popula-

tions, and includes laboratory and field studies of terrestrial, fresh water and marine environments. Extended field trips, some of which will be held on weekends and/or holidays, are an integral part of this course.

Lecture 3 hours

Laboratory Lecture 1 hour

Laboratory 4 hours/Spring Semester

Prerequisite: BO 114, 231

### **BO 315 4 credits**

#### **Biology of Algae**

The freshwater and marine algae of the northeastern United States are surveyed with an emphasis on their taxonomic and ecological evolution. The laboratory focuses upon the identification, isolation and cultivation of algae collected during field trips. Extended field trips into Buzzards Bay and Vineyard Sound are an integral part of the course.

Lecture 3 hours

Laboratory Lecture 1 hour

Laboratory 3 hours/Fall Semester

Prerequisite: BO 121, 124

### **BO 316 3 credits**

#### **Descriptive Oceanography**

An introduction to the field of oceanography. Physical, chemical, and ecological aspects are emphasized to provide a basic foundation for further work in biological oceanography.

Lecture 3 hours

### **BO 317 4 credits**

#### **Biology of Invertebrate Animals**

This course presents an intensive survey of the taxonomy, morphology and functioning of the major invertebrate phyla, with special reference to the adaptations of the intertidal marine invertebrates of the North Atlantic coast. Field trips to the diverse habitats of the area constitute an integral part of the laboratory. Several collecting trips will be held on weekends aboard the university research vessel in Buzzards Bay and Vineyard Sound.

Lecture 3 hours

Laboratory Lecture 1 hour

Laboratory 3 hours/Fall Semester

Prerequisite: BO 121, 124

**BO 318 4 credits****General Entomology**

This is an introductory survey course in the study of insects. The taxonomy of families will be emphasized in lectures. Studies will also include the structure, habits, physiology and ecology of insects. During some laboratories, field trips will be conducted to collect and observe insects in their natural habitats.

Lecture 3 hours

Laboratory Lecture 1 hour

Laboratory 2 hours

**BO 320 4 credits****Embryology**

A description of reproductive and embryological principles, followed by a study of typical vertebrate and invertebrate embryology. The organogenesis of the major vertebrate systems will be described. The laboratory will include the microscopic study of vertebrate embryos and the observation of the development of selected living vertebrate and invertebrate embryos.

Lecture 3 hours/Laboratory 3 hours/Laboratory Lecture 1 hour

Prerequisite: Biology core

**BO 321 4 credits****General Microbiology**

This course explores the nature and diversity of microorganisms. Special emphasis is placed on bacterial cytology, nutrition, physiology, and growth. Topics on the significance of microorganisms in the environment and the evolutionary relationships of microorganisms are included.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 3 hours/Fall Semester

Prerequisite: BO 121, 124, 234

**BO 327 3 credits****Molecular Biology**

A narrative and experimental approach to structure, function and regulation at the molecular level. Study includes genetic organization of DNA, replication, regulation of transcription and translation, molecular embryology, gene engineering as well as cell proliferation and abnormal growth.

Lecture 3 hours

Prerequisite: Biology core or consent of instructor

**BO 333 3 credits****General Genetics**

This course is introductory to the science of heredity. The lectures present integrated concept of the gene provided from the study of Mendelian and



Molecular genetics. Selected topics in population genetics, quantitative inheritance, and human genetics are included.

Lecture 3 hours/Fall Semester

Prerequisite: BO 121, 124, BO 234 desirable

**BO 334 1 credit**

**General Genetics Laboratory**

A laboratory to be taken concurrently with BO 231.

Lecture 1 hour/Laboratory 2 hours/Fall Semester

**BO 350 4 credits**

**Survey of Plant Kingdom**

The phylogenetic relationship among members of the plant kingdom will be studied with an emphasis on evolutionary trends among plant groups rather than an individual plant species. Toward this goal the cytology, anatomy and morphology of plants from Monerans through the Angio-sperms will be covered. Representatives of most groups will be studied in the laboratory and some will be observed in their natural habitats during two field trips.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory and field trips 3 hours

Prerequisite: One year of Biology of Organisms or equivalent

**BO 370 4 credits**

**Animal Physiology**

A study of the general principles of animal physiology integrating molecular, cellular, organ system and whole organism approaches. The accompanying laboratory will provide skill in the techniques used in animal physiological investigations.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 3 hours

Prerequisite: Biology of Cells (or equivalent); Organic Chemistry

**BO 409 3 credits**

**Directed Study**

Terms and hours to be arranged. Readings and reports on special topics

**BO 411 1-3 credits**

**Proseminar: Current Topics in Biology**

Students with senior standing (or others with consent of the instructor) report on and discuss current biological problems as presented in principal journals, abstracts and reviews. The work of each seminar is usually built upon a single unifying content area.

1-3 hours/Fall and Spring Semester

**BO 413 4 credits****Biology of Fishes**

Field trips and extensive laboratory work are emphasized in this course. The life histories, ecology and classification of the fishes of the coastal and inland waters of the northeastern states are studied in detail.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 4 hours/Fall Semester

Prerequisite: Consent of instructor, junior or senior standing in biology

**BO 415 4 credits****Comparative Vertebrate Anatomy**

Structure and phylogeny of vertebrates. Laboratory work illustrates evolutionary trends and specializations.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 2 hours

**BO 421 4 credits****Developmental Biology**

The molecular, cellular, anatomical and physiological aspects of reproduction, embryology, organogenesis and other developmental phenomena of animals are considered in the lecture. Some aspects of plant development are discussed. The laboratory combines anatomical and experimental studies.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 3 hours/Fall and Spring Semesters

Prerequisite: Biology core, especially biology of cells

**BO 424 4 credits****Biology of Animal Parasites**

An introductory course in parasitology emphasizing major protozoan, helminth, and arthropod parasites of man, domestic animals, and fishes.

Laboratory exercises include practical and experimental techniques.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 2 hours

**BO 428 3 credits****Aquaculture**

The study of aquaculture in a global context with emphasis on a few selected forms to serve as examples of working models. The course includes a consideration of theoretical and practical aspects of aquaculture. Field trips and occasional laboratory exercises supplement the course.

Lecture 3 hours

Prerequisite: Biology core program, Ecology and either Biology of Fish, Invertebrates, or Algae

**BO 429 1 credit****Aquaculture Laboratory**

Instruction and hands-on experience in laboratory and field aquaculture techniques. Students, as a team, will initiate, develop and/or maintain an aquaculture project.

Laboratory Lecture 1 hour/Laboratory 3 hours

Prerequisite: Biology core, Ecology, either Biology of Fish, Invertebrates or Algae

**BO 430 4 credits****Introduction to Biological Statistics**

Statistical concepts for the planning of experiments and the summarization of numerical data form the basis of this course. Lectures emphasize probability, testing of hypothesis and the application of different, statistical concepts and problems.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 2 hours

Prerequisite: MA 101, 102 or equivalent; upper division biology standing

**BO 434 4 credits****Plant Physiology**

Introductory course presenting topics about how plants function. Emphasis is placed on higher plants, but discussion of lower plants is also included. Topics include plant-soil water relations, transpiration, translocation, mineral nutrition, photosynthesis, hormones and growth regulators, differentiation and development, photomorphogenesis, flowering. Laboratory combines classical and modern research methods.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 3 hours

Prerequisite: Biology core or consent of instructor

**BO 440 2 credits****Research Project**

The advanced student selects a research project in his field of general interest and, under the supervision of an appropriate staff member, proceeds to independent research leading to the solution of that problem. The student should plan to devote an average of 7 hours per week in this research.

Hours will be arranged.

**BO 441 2 credits****Research Project**

Continuation of BO 440



**BO 442 3 credits****Advanced Genetics**

A historical perspective of the concepts leading to the present theory of gene structure and function is considered. The rigorous experimental evidence supporting this synthesis is reviewed by extensive reading and discussion of original publications. Particular emphasis is placed on the papers published since 1940 and having direct bearing in elucidating the structure and function of the gene.

Lecture 3 hours

Prerequisite: BO 231, 234

**BO 451 3 credits****Environmental Health**

A study of the nature and effects of health hazards which are magnified or produced by human activity. Ionizing radiation, noise, organic and inorganic pollutants of air and water will be evaluated. Discussions will focus on the origins of stresses, their transmission to man, biological effects and methods of protection. Methods of measurement of stresses will be an integral part of the course. Some consideration will be given to economic, political and sociological implications of the controls of stresses. The course format will encourage student participation in the discussion of environmental problems. Students will be expected to investigate etiological agents such as radionuclides, heavy metals, pesticides, herbicides or industrial products and by-products.

Lecture 3 hours

Prerequisite: Upper division or graduate standing or consent of instructor

**BO 454 3 credits****Biology of Sharks**

The morphology, physiology, behavior and evolutionary history of the most ancient group of living jawed fishes will be considered in this course. The most unusual aspects of these fish, such as modes of reproduction, osmotic regulation, feeding mechanisms and sensory physiology, will be stressed throughout. The course will include lectures, discussions, laboratory work and field trips.

Prerequisite: Permission of instructor

**BO 460 4 credits****Biological Transmission Electron Microscopy:  
Introduction to Techniques**

The course will introduce students to the theory and techniques employed in transmission electron microscopy. The student will fix, in-bed, section, and examine biological specimens with the electron microscope. The

necessary darkroom procedures will also be taught. Each student will be expected to present their findings in the form of a written report at the end of the semester.

Lecture 1 hour/Laboratory 6 hours

#### **BO 470 4 credits**

##### **Introductory Mycology**

The course introduces the student to the taxonomy and the biochemical activities of the fungi. The laboratory exercises involve the isolation, identification, and physiological characterization of some of the community encountered marine and terrestrial fungi.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 2 hours

#### **BO 471 4 credits**

##### **Marine Microbiology**

This course will deal the taxonomy, physiology, and the role of heterotrophic microorganisms in the marine environment. The viruses will also be considered. Emphasis will be placed on the activities of the viruses, bacteria, and the fungi in the marine environment in the laboratory, exercises will be conducted on the methods of enumeration, detection of selected physiological groups, uptake and depuration of microorganisms by shellfish, marine biodeterioration, and the influence of environmental parameters on the growth and activities of marine microorganisms.

Lecture 3 hours/Laboratory Lecture 1 hour/Spring Semester

#### **BO 479 2 credits**

##### **Developmental Biology of Marine Animals**

Descriptive and experimental embryology of invertebrates and fish.

Offered in the late spring and early summer, alternate years.

#### **BO 495 3 credits**

##### **Independent Study**

Terms and hours to be arranged. Readings and reports on special topics.

#### **BO 496 3 credits**

##### **Directed Study**

Terms and hours to be arranged. Readings and reports on special topics.

#### **BO 509 1-3 credits**

##### **Seminar in Biology**

Terms and hours to be arranged. Readings and reports on special topics.

**BO 511 1-3 credits****Graduate Seminar in Biology**

Student discussions of selected topics will be carried out under the supervision of a faculty member. Topics to be announced in advance of seminar. Fall and Spring Semester

Prerequisite: Graduate standing or consent of instructor

**BO 517 4 credits****Advanced Biology of Invertebrate Animals**

An advanced treatment of the taxonomy, morphology, and function of invertebrate animals.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 3 hours

Prerequisite: Graduate standing or consent of instructor

**BO 518 3 credits****Biogeography**

Biogeography is the study of present and past global distributions of plant and animal taxa in terrestrial, marine and freshwater habitats. Distributional patterns will be considered in relation to changes of the physical environment over geological time, such as in global patterns of climate and resources. The evolution of recent association of organisms will also be examined in relation to ecological interactions between organisms, such as competition and predation.

Lecture 3 hours

Prerequisite: BO 314 or equivalent

**BO 520 3 credits****Animal Behavior**

Comparative and evolutionary aspects of behavior of invertebrate and vertebrate animals are studied. Structure and function of nervous systems, simple behavioral patterns including reflexes and other forms of innate behavior as well as more complex patterns including learning and social behavior are stressed.

Lecture 3 hours

Prerequisite: Senior or graduate standing and consent of instructor

**BO 525 1 credit****Graduate Student Seminar**

This course offers an opportunity for all graduate students to present a seminar to their peers and faculty at the graduate level. A different theme for the seminar will be used each term but generally students will choose a topic, search current literature, compile a working bibliography, and give an oral presentation. Each student (and attendant faculty) will write a brief evaluation.



uation to be given to the speakers following their presentation. This course is required of all graduate students. Two graduate Student Seminar credits are allowable toward the Master's degree.

Prerequisite: Graduate standing

### **BO 531 4 credits**

#### **Advanced Ichthyology**

Advanced ichthyology deals with studies of fish phylogeny and classification, physiological problems peculiarly faced by fish, and aspects of fisheries hydrography. The laboratory stresses independent work on the age growth structure of fish populations as well as the measurement of physiological parameters. Student participation in seminars is required.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 2 hours

Prerequisite: Graduate standing or consent of instructor

### **BO 535 3 credits**

#### **Analysis of Biological Data**

The processing and analysis of biological and especially ecological data are the primary objectives of this course. Topics include problems encountered in processing and handling of data, computers and computer programming, distribution and transformation, associations, computer simulations, non-parametric methods, and usefulness and limitation of multivariate methods.

Lecture 3 hours

Prerequisite: Introduction to Biological Statistics or equivalent

### **BO 536 1 credit**

#### **Laboratory for Analysis of Biological Data**

Laboratory for BO 535. Topics correspond with the lectures. Laboratory will be offered only if on-line computer terminals become available in a classroom setting. Lecture two 1 1/2 hour meetings

### **BO 540 4 credits**

#### **Environmental Physiology of Marine Animals**

Considers the physiological mechanisms of adaptation to the variety of ecological parameters in the marine environment that result in stress in marine animals. The potential effect of environmental perturbations on these physiological adaptations will also be considered. The laboratory encourages independent projects leading to the preparation and presentation of a research paper.

Lecture 3 hours

Prerequisite: Graduate standing or consent of the instructor. Both Physiology and Ecology are highly recommended.

**BO 545 4 credits****Biological Oceanography**

The cycle of productivity in the marine environment is emphasized and the physiological and morphological adaptations of plant, animal and bacterial populations within various oceanic regions are considered. Interrelationships of the plankton, the nekton and the benthos are stressed.

Lecture 3 hours/Laboratory Lecture 1 hour/Laboratory 2 hours

**BO 593 1-3 credits****Graduate Research Project**

Directed research for graduate students. Hours by arrangement. Spring and Fall Semester.

Prerequisite: Graduate standing or consent of instructor

**BO 595 Independent Study****BO 599 Not to exceed 10 credits****Graduate Thesis****BO 900 Contract Learning**

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## Faculty and Fields of Interest

**Alan Bates** inorganic and organometallic chemistry

**Russell Bessette** electroanalytical chemistry and chemical instrumentation

**Donald Boerth** physical organic chemistry, theoretical chemistry

**William L. Dills, Jr.** biochemistry of carbohydrates, metabolism and metabolic effects of carbohydrate analogues

**James Golen** physical inorganic chemistry, synthesis and molecular spectroscopy of inorganic compounds

**Thomas J. Greenbowe** chemical education

**Robert Hooper** coordination chemistry

**Dwight Mowery** organic and carbohydrate chemistry

**Michele Scullane** transition metal chemistry and magnetic resonance

**J. Donald Smith** biochemistry of phospholipids and phosphonic acids, metabolic regulation

**Timothy Su** physical chemistry, ion-molecule reactions, polymer science

**George Thomas, Jr.** physical chemistry, molecular biophysics and spectroscopy

**Ralph Tykodi** equilibrium and non-equilibrium thermodynamics

**Claude Wagner** geochemistry

**Margaret Wechter (chairperson)** analytical radiochemistry

**Chang-ning Wu** selective aromatic substitution, electro-organic synthesis, and molecular rearrangements.

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## Chemistry Major

The programs for chemistry majors are designed to provide a solid foundation in the theoretical knowledge and practical laboratory skills necessary for a variety of professional careers. The programs prepare students for industrial research, graduate study, medical school, teaching, technical sales, or technical writing.

In order to fit the needs of the individual student, the department offers chemistry majors four different options. The courses prescribed for each of these options and the career opportunities available upon completion of each major are described below.



### Chemistry Major (Conventional Option)

This option prepares a student for graduate work in various fields of chemistry both pure, such as organic, inorganic, physical, analytical or biochemical and applied, such as clinical, forensic or environmental chemistry. It may also be supplemented by graduate work in an entirely different area such as law, library or business, leading to a career as a research chemist, chemical patent attorney, librarian, science illustrator, technical writer, or executive in the chemical industry. In addition, this option will prepare a student for employment in the chemical industry as a chemical technician, salesperson, purchasing agent, market analyst, production supervisor, etc. or in education as a secondary school teacher. A number of free electives are included to provide flexibility in the program to suit the student's special interest.

First Year			Semester Credits:	First	Second
CH	151,	152	Principles of Modern Chem.	3	3
CH	165,	166	Intro. to Experimentation	2	2
CH	172		Intro. to Computer Programming for Chemists		1
MA	111,	112	Anal. Geo. and Calculus I, II	4	4
ENG	101,	102	Freshman English	3	3
			Humanities or Soc. Sciences	3	3
			Total Credits	15	16

Second Year			Semester Credits:	First	Second
CH	251,	252	Organic Chemistry I, II	3	3
CH	265,	266	Organic Chemistry Lab. I, II	2	2
CH	272		Descriptive Inorg. Chem.		3
MA	211		Anal. Geo. and Calculus III	4	
MA	212		Differential Equations		3
PH	111,	112	Physics I, II	3	3
PH	121,	122	Physics Laboratory	1	1
			English Language Literature	3	
			Total Credits	16	15

Third Year			Semester Credits:	First	Second
CH	305		Modn. Methods of Chem. Anal.	3	
CH	307		Procedures of Chem. Anal.	2	
CH	315,	316	Physical Chemistry I, II	4	4
CH	318		Phys. Chem. Measurements I		2
CH	320		Computer Programming in Chem.		3
PH	211		Physics III	3	
			Humanities, Soc. Sci. or Lt.	3	3
			Free Elective		3
			Total Credits	15	15

Fourth Year			Semester Credits:	First	Second
CH	319	Phys. Chem. Measurements II		2	
CH	401, 402	Chemistry Seminar			1
		Humanities or Soc. Sciences		3	6
		Adv. Chem. Electives		6	3
		Free Electives		3	6
		Total Credits		14	16

### Chemistry Electives

CH	352	Organic Preparations
CH	411	Biochemistry I
CH	412	Biochemistry II
CH	414	Biochemistry Laboratory
CH	421	Organic Mechanisms
CH	425	Polymer Science and Technology
CH	431	Principles of Inorganic Chemistry
CH	432	Organic Analysis
CH	442	Applied Spectroscopy
CH	491	Introduction to Research I
CH	492	Introduction to Research II
CH	510	Advanced Organic Chemistry
CH	520	Advanced Inorganic Chemistry
CH	523	Thermodynamics
CH	529	Physical Biochemistry
CH	531	Chemical Kinetics
CH	533	Statistical Mechanics
CH	542	Quantum Chemistry
CH	550	Special Topics in Chemistry
CH	551	Electrochemistry
CH	552	Instrumental Methods of Analysis
CH	554	Molecular Spectra and Structure

The electives must include at least 9 credits in chemistry courses. Students who wish to be certified by the American Chemical Society must include among their electives CH 552 and two other advanced chemistry electives at the 400 or 500 level. Students who elect to do senior research may count either CH 491 or CH 492 toward certification. Similarly, students who receive certification credit for one term of the 400 level biochemistry I & II sequence. The ACS recommends that some advanced course work be selected from one or more of the following areas: inorganic chemistry, biochemistry, and polymer chemistry.

### Chemistry Major (Biochemistry Option)

The Biochemistry Option for the B.S. degree in chemistry is designed for those students with dual interests in biology and chemistry. A student receiving this degree will be qualified to enter industry as a B.S. biochemist or, with the selection of several education courses, will be well qualified as a high school science teacher. Students with the chemistry major (Biochemistry option) will be able to enter graduate school in any of the areas of chemistry, biochemistry, molecular biology, pharmacology, nutrition or other life science programs. The following curriculum conforms to that recommended by the American Society of Biological Chemists for an undergraduate degree in biochemistry.

First Year			Semester Credits:	First	Second
CH	151,	152	Principles of Modn. Chemistry	3	3
CH	165,	166	Intro. to Experimentation	2	2
CH	172		Intro. to Comp. Programming for Chemists		1
MA	111,	112	Anal. Geo. and Calculus I, II	4	4
EN	101,	102	Freshman English	3	3
			Humanities or Soc. Science	3	3
Total Credits				15	16

Second Year			Semester Credits:	First	Second
CH	215,	252	Organic Chemistry I, II	3	3
CH	265,	266	Organic Chemistry Lab. I, II	2	2
MA	211		Anal. Geo. and Calculus III	4	
BO	234		Biology of Cells <sup>2</sup>	3	
BO	244		Biology of Cells Lab. <sup>2</sup>	1	
PH	112		Physics II <sup>3</sup>		3
PH	122		Physics Lab.		1
			Humanities, Soc. Sci. or Lit.	3	6
Total Credits				16	15

Third Year			Semester Credits:	First	Second
CH	315,	316	Physical Chemistry I, II	4	4
CH	411,	412	Biochemistry I, II	3	3
CH	414		Biochemistry Laboratory <sup>4</sup>		3
CH	305		Modn. Methods of Chem. Anal.	3	
CH	307		Procedures of Chem. Anal.	2	
			Bio. Electives <sup>5</sup>		4
			Humanities, Soc. Sci., or Lit.		3
PH	211		Physics III	3	
Total Credits				15	17



Fourth Year			Semester Credits:	First	Second
CH	529	Physical Biochemistry		3	
CH	401, 402	Chemistry Seminar			1
		Bio/Chem. Electives <sup>5</sup>		3	3
		Humanities, Soc. Sci. or Lit		3	3
		Free Electives		6	6
		Total Credits		15	13

**Biology Electives (2 required)<sup>5</sup>**

BO	321	4	General Microbiology
BO	327	3	Molecular Biology
BO	333, 334	4	General Genetics
BO	370	1-3	Proseminar (Immunology, Virology, Plasmids)
BO	421	4	Developmental Biology
BO	434	4	Plant Physiology
BO	460	4	Transmission Electron Microscopy

**Chemistry Electives (1 required)<sup>5</sup>**

CH	318	2	Physical Chemistry Measurements I
CH	319	2	Physical Chemistry Measurements II
CH	320	3	Computer Programming in Chemistry
CH	421	3	Organic Mechanism
CH	431	3	Inorganic Chemistry
CH	442	3	Applied Spectroscopy
CH	491	3	Introduction to Research I
CH	492	3	Introduction to Research II
CH	552	3	Instrumental Methods of Analysis

<sup>1</sup> It is strongly recommended that the humanities requirement be satisfied by taking at least 1 and preferably 2 years of French, German or Russian.

<sup>2</sup> Students with weak backgrounds in biology may need to take BO 121, 122, 131, 132 before attempting subsequent biology courses.

<sup>3</sup> Students who have not had high school physics will need to take PH 111, 121. We anticipate that Physics 112, 211 will be replaced by a 2 semester course comprising the subject matter of PH 111, 121, 211.

<sup>4</sup> Students who do not contemplate doing undergraduate research (CH 491-492) may postpone CH 414 until their senior year.

<sup>5</sup> Other advanced biology or chemistry courses may be substituted with the advance, written permission of the biochemistry advisor.

### Chemistry Major (Premedical Option)

This option offers distinct advantages in efficiency, versatility, and rigor in the preparation of students interested in further studies in a medical, dental, optometric, podiatric, osteopathic, or veterinary school. Programs for Premed students should have the advance, written permission of Dr. Alan Bates, Co-chairperson of the Premedical Advisory Committee.

First Year			Semester Credits:	First	Second
CH	151,	152	Principles of Modern Chem.	3	3
CH	165,	166	Intro. to Experimentation	2	2
CH	172		Intro. to Computer Programming for Chemists		1
MA	111,	112	Anal. Geo. and Calculus I, II	4	4
EN	101,	102	Freshman English	3	3
BO	121,	122	Biology of Organisms	3	3
BO	131,	132	Biology of Organisms Lab	1	1
Total Credits				16	17

Second Year			Semester Credits:	First	Second
CH	251,	252	Organic Chemistry I, II	3	3
CH	265,	266	Organic Chemistry Lab I, II	2	2
CH	272		Descriptive Inorganic Chem.		3
MA	211		Anal. Geo. and Calculus III	4	
PH	112		Physics II <sup>1</sup>		3
PH	122		Physics II Laboratory <sup>1</sup>		1
BO	320		Embryology <sup>2</sup>		4
BO	234		Biology of Cells	3	
BO	244		Biology of Cells Lab	1	
			English Language Literature	3	3
Total Credits				16	19

Third Year			Semester Credits:	First	Second
CH	305		Modern Methods of Chem. Anal. <sup>2</sup>	3	
CH	307		Procedure of Chem. Anal. <sup>2</sup>	2	
CH	315,	316	Physical Chemistry I, II	4	4
CH	318		Phys. Chem. Meas. I		2
BO	333		General Genetics	3	
BO	334		General Genetics Lab.	1	
PH	211		Physics III	3	
PH	221		Physics III Lab	1	
			Science Elective <sup>3</sup>		3
			Humanities or Social Science		6
Total Credits				17	15

Fourth Year			Semester Credits:	First	Second
CH	401, 402	Chemistry Seminar			1
		Humanities or Soc. Sciences		6	6
		Free Electives <sup>3</sup>		3	6
		Total Credits		9	13

<sup>1</sup> Students who have had no high school physics should take PH 111-121 in the Fall Semester and defer BO 234-244, Cell Biology, until the Fall of the Third Year.

<sup>2</sup> If BO 320, Embryology is not offered in a given year, BO 421, Developmental Biology, may be taken in the Fall, Third Year; it maybe necessary to defer CH 305, CH 307 to the Fall of the Fourth Year.

<sup>3</sup> Where electives are listed in the Third and Fourth Year, the premed students may wish to consider the following: CH 320 Computer Programming in Chemistry (or another computer course); CH 362 Introduction to Biochemistry; CH 491-492 Introduction to Research; BO 221-222 or BO 370 Anatomy and Physiology I or Animal Physiology.

### Chemistry Major (B.S. - M.S. Option)

This option offers advantages to very capable students who are willing to devote their summers to furthering their education. For those going on to graduate work, it provides exposure to graduate courses and research, making the transition from B.S. to Ph.D. level performance easier. For those going into teaching or industry, it yields a significant financial improvement.

First Year			Semester Credits:	First	Second
CH	151, 152	Principles of Modern Chem.		3	3
CH	165, 166	Intro. to Experimentation		2	2
CH	172	Intro. to Comp. Programming for Chemists			1
MA	111, 112	Anal. Geo. and Calculus I, II		4	4
PHY	111, 112	Physics I, II		3	3
PHY	121, 122	Physics Laboratory		1	1
E	101, 102	Freshman English		3	3
		Total Credits		16	17

Summer 1			Semester Credits:	First	Second
MA	122	Anal. Geo. and Calculus III		4	
MA	212	Differential Equations			3
		Total Credits		4	3



Second Year			Semester Credits:	First	Second
CH	272	Descriptive Inorg. Che.			3
CH	305	Modn. Methods of Chem. Anal.	3		
CH	307	Procedures of Chem. Anal.	2		
CH	315, 316	Physical Chemistry I, II	4		4
CH	318	Phys. Chem. Measurements I			2
PHY	211	Physics III	3		
		English Language Literature	3		3
		Free Elective			3
Total Credits			15		15

Summer 2			Semester Credits:	First	Second
CH	251, 252	Organic Chemistry I, II	3		3
CH	265, 266	Organic Chemistry Lab I, II	2		2
Total Credits			5		5

Third Year			Semester Credits:	First	Second
CH	319	Phys. Chem. Measurements II	2		
CH	320	Comp. Programming in Chem.			3
		Humanities or Soc. Sciences	3		3
		*Adv. Chemistry Electives (BS)	3		3
		*Adv. Chemistry Electives	3		3
		Free Elective	3		3
Total Credits			14		15

Summer 3			Semester Credits:	First	Second
		Humanities or Soc. Sciences			3
CH	600	Thesis Research			3
Total Credits					6

Fourth Year			Semester Credits:	First	Second
CH	401, 402	Chemistry Seminar			1
CH	600	Thesis Research	3		3
		*Adv. Chemistry Electives	3		3
		Humanities or Soc. Sciences	3		3
		Free Elective			3
		*Adv. Chemistry Electives (BS)	3		
		*Adv. Chemistry Electives	3		3
Total Credits			15		16

Summer 4		Semester Credits:	First	Second
CH 600	Humanities or Soc. Sciences			3
	Thesis Research			3
	Total Credits			6

\*Courses satisfying the M.S. requirements must be approved by the thesis advisor.

## Chemistry Courses

### CH 101 3 credits

#### General Chemistry I

An introduction to the fundamental chemical laws and theories covering inorganic and organic chemistry with some descriptive chemistry. For non-science majors, nurses and textile technologists.

Lecture 4 hours.

### CH 102 3 credits

#### General Chemistry II

Continuation of Ch 101.

Lecture 4 hours.

Prerequisite: CH 101

### CH 103 1 credit

#### General Chemistry Laboratory I

An introduction to chemical laboratory techniques and methods including measurements and demonstrations of chemical principles.

Laboratory 2 hours.

Corequisite: CH 101

### CH 104 1 credit

#### General Chemistry Laboratory II

Continuation of Ch 103.

Laboratory 2 hours.

Prerequisite: CH 101, 103

Corequisite: CH 102

**CH 130 3 credits****Chemistry and the Environment**

Available to anyone in the University, this course provides substantial treatment, with demonstrations, of the chemistry involved in consumer concerns (food additives, medicines, detergents, etc.), air and water pollution, elementary biochemistry, and the general question of power generation and utilization (fuel cells, solar energy conversion, nuclear energy, etc.). Credit applies to any science distribution requirements. No knowledge of chemistry is assumed, but it is hoped the student will have had high school chemistry or its equivalent.

Lecture 3 hours.

**CH 151 3 credits****Principles of Modern Chemistry I**

An introduction to the basic physical and chemical principles pertaining to the structure of chemical species and to the nature, extent, and rates of chemical reactions. The details of atomic and molecular structure, the phenomenon of chemical periodicity, and the characteristics of equilibrium systems are emphasized and discussed in the light of modern theories. A knowledge of high-school chemistry is strongly recommended as a prerequisite for this course.

Lecture and recitation 4 hours.

**CH 152 3 credits****Principles of Modern Chemistry II**

Continuation of CH 151.

Lecture and recitation 4 hours.

Prerequisite: CH 151

**CH 161 1 credit****Introductory Applied Chemistry I**

Intended primarily for regular engineering majors, this course is an introduction to chemical laboratory techniques and methods with emphasis on preparation and purification of compounds, molecular weight determination, elemental analysis, reaction stoichiometry, chemical ionization, and selected descriptive chemistry.

Lecture 1 hour/Laboratory 2 hours.

Corequisite: CH 151

**CH 162 1 credits****Introductory Applied Chemistry II**

Intended primarily for regular engineering majors, this course is a continuation of CH 161 with emphasis on thermochemistry, chemical equilibria, acid-base chemistry, chromatographic techniques, electrochemistry and



corrosion, and organic chemistry.  
Lecture 1 hour/laboratory 2 hours.  
Prerequisite: CH 161  
Corequisite: CH 152

**CH 163 2 credits**

**Quantitative Chemistry I**

The theory and practice of gravimetric analysis including an introduction to instrumental analysis, the principles and the use of the spectrophotometer, absorption instruments, pH measurements, chromatography, and an introduction to volumetric analysis. This course is designed for students with professional objectives in biology and medical technology.  
Lecture 1 hour/laboratory 4 hours.  
Prerequisite or Corequisite: CH 151

**CH 164 2 credits**

**Quantitative Chemistry II**

Continuation of CH 163 with major emphasis on volumetric analysis.  
Lecture 1 hour/laboratory 4 hours.  
Prerequisite: CH 163  
Corequisite: CH 152

**CH 165 2 credits**

**Introduction to Experimentation I**

An introduction to the basic techniques, methods and theory of chemical experimentation, and the recording, analysis, interpretation and reporting of experimental results, based on qualitative and quantitative chemical procedures. Skills, of professional quality, needed to use apparatus for the accurate measurement of mass, volume, color intensity, refractive index, electrical energy, etc. will be developed.  
Lecture 2 hours/laboratory 4 hours.  
Prerequisite or Corequisite: CH 151

**CH 166 2 credits**

**Introduction to Experimentation II**

Continuation of CH 165.  
Lecture 2 hours/laboratory 4 hours.  
Prerequisite: CH 165

**CH 172 1 credit****Introduction to Computer Programming for Chemists**

An introduction to computer programming with emphasis on Fortran. Application to general chemistry problems and treatment of experimental data.

Lecture 1 hour/recitation 1 hour.

Prerequisites: CH 151, 165

Corequisites: CH 152, 166

**CH 251 3 credits****Organic Chemistry I**

A survey of the chemistry of carbon compounds and introduction to the basic principles of organic chemistry.

Lecture 3 hours.

Prerequisite: CH 152

**CH 252 3 credits****Organic Chemistry II**

Continuation of CH 251.

Lecture 3 hours.

Prerequisite: CH 251 with a grade of C- or better.

**CH 263 1 credit****Bio-organic Chemistry Laboratory I**

The synthesis of organic compounds and an introduction to the organic methods of separation, purification and identification. This course is coordinated with CH 251 and is designed for biology and medical technology majors.

Laboratory 3 hours/lecture 1 hour

Prerequisite: CH 152 and CH 164

Corequisite: CH 251

**CH 264 1 credit****Bio-organic Chemistry laboratory II**

Continuation of Ch 263.

Laboratory 3 hours/lecture 1 hour.

Prerequisite: CH 251 and 263

Corequisite: CH 252

**CH 265 2 credits****Organic Chemistry Laboratory I**

The synthesis of organic compounds and an introduction to the organic methods of separation, purification and identification. This course is coordinated with CH 251 and is designed for chemistry and textile and chemis-

try majors.

Laboratory 3 hours/lecture 1 hour

Prerequisite: CH 152 and CH 166 or CH 164

Corequisite: CH 251

**CH 266 2 credits**

**Organic Chemistry Laboratory II**

Continuation of Ch 265.

Laboratory 3 hours/lecture 1 hour

Prerequisite: CH 251 and 265

Corequisite: CH 252

**CH 272 3 credits**

**Descriptive Inorganic Chemistry**

A survey of the preparations and reactions of selected representative elements and transition metals. For each element the following points are treated: physical and chemical properties of the element; occurrence of the element in nature, its extraction and uses; important compounds and their uses, including industrial processes. An introduction to transition metal complexes. An advanced treatment of ionic equilibria including precipitation and complex-formation reactions and the dissociation of polyprotic acids and bases.

Lecture 2 hours/laboratory 3 hours.

Prerequisites: CH 152, CH 166

**CH 305 3 credits**

**Modern Methods of Chemical Analysis**

Introduction to chemical and instrumental analytical techniques. The theory of neutralization reactions in aqueous and nonaqueous systems. Oxidation-reduction and complex formation equilibria. Basic theory of electronic circuitry. Separation principles involving phase changes, solvent extraction and the various types of chromatography. Introduction to electrochemical, potentiometric and spectrophotometric measurements. The statistical treatment of analytical data.

Lecture 3 hours.

Prerequisite: CH 252, 266, and CH 164 or 166

Corequisite: CH 315



**CH 307 2 credits****Procedures of Chemical Analysis**

Laboratory experimentation designed to develop the techniques and illustrate applications of analytical procedures to the solution of chemical problems.

Laboratory coordinated with CH 305.

Laboratory 4 hours/lecture 1 hour

Corequisite: CH 305

**CH 315 4 credits****Physical Chemistry I**

An introduction to the theoretical principles underlying chemical phenomena, applications of thermodynamics to chemical phenomena, chemical kinetics, transport processes in gases and liquids.

Lecture 3 hours/recitation 1 hour

Prerequisites: CH 152, MA 212, two semesters of college physics

**CH 316 4 credits****Physical Chemistry II**

Continuation of CH 315.

Lecture 3 hours/recitation 1 hour.

Prerequisites: CH 315

**CH 317 3 credits****Physical Chemistry III**

Continuation of Physical Chemistry II, with emphasis on theoretical physical chemistry, including topics in wave mechanics, atomic structure, molecular structure, spectroscopy and statistical thermodynamics.

Lecture 3 hours.

Prerequisites: CH 316

This course will be offered for the last time in Fall, 1984.

**CH 318 2 credits****Physical Chemical Measurements I**

Experiments in physical chemistry designed to test established theoretical principles which have been introduced in CH 315, 316 and 317. The experiments provide the student with basic experience in obtaining precise physical measurements of important chemical interest.

Laboratory 4 hours/lecture 1 hour

Prerequisites: Ch 305-7, CH 315

Corequisite: CH 316

**CH 319 2 credits****Physical Chemical Measurements II**

Continuation of CH 318.

Laboratory 4 hours/lecture 1 hour

Prerequisites: CH 305-7, CH 316

Corequisite: CH 317

**CH 320 3 credits****Computer Programming in Chemistry**

An introduction to FORTRAN IV computer logic. Application of computer programming to general chemistry problems, thermodynamics problems, organic synthesis, simple chemical kinetics and spectroscopy-IR, NMR, mass spectrometry. Polynomial regression. Exponential function fit. Treatment of experimental data. Numerical integration. Solution of differential equations. Solving simultaneous equations-iteration technique. Use of scientific subroutine package.

Prerequisite (or corequisite) MA 212

This courses may not be taken for credits by student who have received credit for CIS 261

**CH 352 3 credits****Organic Preparations**

A study of the more intricate synthetic procedures of organic chemistry including use of the literature for choice of optimum methods.

Lecture 1 hour/laboratory 5 hours.

Prerequisites: CH 252 and CH 266

**CH 362 3 credits****Introduction to Biochemistry**

An introduction to the chemical properties of compounds of biological interest; energetics and enzymology. A survey of the metabolism of proteins, carbohydrates, lipids, nucleic acids and other bio-substances.

Lecture 3 hours

Prerequisite: CH 252

Students may not receive credit for both CH 362 and CH 411/412.

**CH 401 1/2 credit****Chemistry Seminar I**

Lectures on current topics in chemistry from guest lecturers and students. Student must enroll for two semesters out of four in the junior and senior years.

Lecture 1 hour.

**CH 402 1/2 credit****Chemistry Seminar II**

Continuation of CH 401.

Lecture 1 hour.

**CH 411 3 credits****Biochemistry I**

A comprehensive study of biochemistry including amino acid and protein chemistry, enzymology, enzyme kinetics, bioenergetics; metabolism of carbohydrates, lipids, amino acids, nucleotides; biosynthesis of nucleic acids and proteins.

Lecture 3 hours

Prerequisite: CH 252, recommended: BO 234

Students may not receive credit for both CH 362 and CH 411, 412.

**CH 412 3 credits****Biochemistry II**

A continuation of CH 411.

Lecture 3 hours.

**CH 414 3 credits****Biochemistry Laboratory**

Basic biochemical techniques and methods including spectrophotometry, electrophoresis, chromatography, ultracentrifugation and radioisotopic techniques and their application to amino acids and proteins, lipids and membranes, enzymes and nucleic acids.

Lecture 1 hour/laboratory 6 hours.

Prerequisite: CH 264 or 266; CH 411

Prerequisite or corequisite: CH 412

Recommended CH 305 and CH 307; BO 234, 244

**CH 421 3 credits****Organic Mechanism**

A study of the structure and reactions of organic molecules using molecular orbital and resonance theories.

Lecture 3 hours; offered each fall term.

Prerequisite: CH 252

Prerequisite or Corequisite: CH 315

**CH 425 3 credits****Polymer Science and Technology**

The molecular structure and physical and chemical properties of polymers. Industrial aspects of polymers will be stressed and an attempt made to



bridge the gap between theoretical and practical consideration in polymer science.

Lecture 3 hours; offered in alternate years.

Prerequisites: CH 316, MA 212, PH 112.

### **CH 431 3 credits**

#### **Principles of Inorganic Chemistry**

The application of physical chemical principles to inorganic systems. Discussions of the chemistry of the representative elements utilizing thermodynamic principles and the modern theories of bonding and structure.

Introduction to coordination chemistry.

Lecture 3 hours; offered each fall term.

Prerequisite: CH 316

### **CH 432 3 credits**

#### **Organic Analysis**

Quantitative elemental and group determination on a microscale followed by a study of the systematic identification of organic compounds. Extensive laboratory work on unknown is required.

Lecture 2 hours/laboratory 4 hours.

Prerequisites: CH 252, CH 266.

### **CH 442 3 credits**

#### **Applied Spectroscopy**

A study of spectroscopic methods of determination of structure of organic compounds, especially infrared, ultra-violet, visible, nuclear magnetic resonance, and mass spectroscopy, with extensive applications to individual cases.

Lecture 3 hours; offered in alternate years.

Prerequisite: CH 252, CH 266, and CH 315.

### **CH 491 3 to 6 credits**

#### **Introduction to Research I**

Chemistry majors who are doing well in formal course work and who have indicated research potential are encouraged to undertake an original investigation under the direction of a member of the chemistry faculty.

Laboratory 9 to 18 hours

Prerequisite: Departmental permission

### **CH 492 3 to 6 credits**

#### **Introduction to Research II**

Continuation of CH 491.

Laboratory 9 to 18 hours.

**CH 510 3 credits****Advanced Organic Chemistry**

A study of mechanisms and stereochemical aspects of chemical reactions including a consideration of chemical kinetics and reactivity in terms of modern bonding theory and structural concepts.

Lecture 3 hours; offered each spring term.

Prerequisite: CH 316 and CH 421.

**CH 520 3 credits****Advanced Inorganic Chemistry**

An advanced treatment of the structure and reactivity of inorganic materials. Major emphasis is on molecular orbital theory, the ligand field theory of transition metal complexes, and the kinetics and mechanisms of inorganic reactions.

Lecture 3 hours; offered each spring term

Prerequisites: CH 317 and CH 431.

**CH 523 3 credits****Thermodynamics**

Development of the general thermodynamic theory from the first and second laws and application to homogeneous and heterogeneous reaction systems.

Lecture 3 hours; offered alternate years.

Prerequisite: CH 316.

**CH 525 3 credits****Theoretical Organic Chemistry**

Molecular orbital theory of organic molecules; applications of molecular orbital theory; reactivity, ESR, Carbon-13 NMR, photoelectron spectroscopy, etc., orbital symmetry in electrocyclic reactions, cycloadditions, and sigmatropic reactions.

Lecture 3 hours; offered each spring term.

Prerequisite: CH 316 and CH 421.

**CH 527 3 credits****Electronic Structure of Atoms and Molecules**

Fundamental quantum mechanical principles of electronic structure. Angular momentum, the hydrogen atom problem, helium ground and excited states, electron spin and antisymmetrization, many electron atoms, bonding theory: valence bond and molecular orbital theory, molecular orbital theory of diatomic and polyatomic molecules, applications of group theory to molecular orbital calculations, the self-consistent field method.

Lecture 3 hours: offered in alternate years

Prerequisite: CH 317.

**CH 529 3 credits****Physical Biochemistry**

Application of Physico-Chemical Principles to Biochemistry. Discussion of the theoretical basis of such biochemical techniques as ultracentrifugation, electrophoresis and chromatography and their applications. Multisubstrate enzyme kinetics.

Lecture 3 hours.

Prerequisites: CH 412 and 316

**CH 531 3 credits****Chemical Kinetics**

Principles and selected topics, including analysis of reaction rates, kinetic and transition-state theories, reactions in gas and liquid phases, unimolecular reactions, fast reactions and enzyme kinetics.

Lecture 3 hours; offered in alternate years.

Prerequisite: CH 316.

**CH 533 3 credits****Statistical Mechanics**

Introduction to the principles and methods of statistical mechanics. Classical and quantum partition functions will be applied to the calculation of thermodynamic properties.

Lecture 3 hours; offered alternate years.

Prerequisite: CH 317.

**CH 542 3 credits****Quantum Chemistry**

Fundamental concepts of quantum mechanics: wave properties, Schrodinger equation, operators. Basic applications to free particles, harmonic oscillator, hydrogen atom. Perturbation theory and variation method. Applications to many electron systems and time-dependent problems.

Lecture 3 hours; offered alternate years.

Prerequisite: CH 317.

**CH 550 3 credits****Special Topics in Chemistry**

An advanced treatment of special topics in chemistry with an emphasis on recent developments. The subject matter may vary from year to year.

Prerequisite: Permission of the instructor.



**CH 551 3 credits****Electrochemistry**

The development of the fundamental mathematical relationships upon which electrochemical methods are based. The interpretation of the kinetics of electrode reactions and the transfer of material to and from electrodes under various conditions. The interpretation of data of direct analytical significance generated by the methods and techniques of modern electrochemistry.

Lecture 3 hours; offered in alternate years.

Prerequisite: CH 316

**CH 552 3 credits****Instrumental Methods of Analysis**

The theory and practice of modern analysis utilizing optical and electrochemical instrumentation in the solution of chemical problems. topics discussed include ultra-violet, visible and infrared spectrophotometry; fluorimetry; flame emission and atomic absorption photometry; radiochemistry; thermoanalytical methods; mass spectrometry; analytical applications of nuclear magnetic resonance; voltammetry including polarographic, amperometric, and coulometric methods of analysis.

Lecture 2 hours/laboratory 3 hours; offered each spring Prerequisites: CH 305-307

Prerequisite or corequisite: CH 316.

**CH 553 3 credits****Nuclear and Radiochemistry**

Discussion of the theory and applications of the decaying nucleus. Topics include natural and artificial radioactivity; preparation and decay of properties of radioactive nuclides; interaction of radiation and matter; nuclear models; nuclear fusion; applications to chemistry.

Lecture 3 hours; offered in alternate years.

Prerequisite: CH 316

**CH 554 3 credits****Molecular Spectra and Molecular Structure**

Discussion of basic principles of molecular spectroscopy; rotational, vibrational and electronic spectra; transition moments and selection rules. Use of spectra to find dissociation energies, force constants, interatomic distances, molecular symmetry and related quantities. Applications to real molecules in conjunction with other techniques for study of molecular structure.

Lecture 3 hours; offered in alternate years.

Prerequisite: CH 317.

**CH 555 3 credits****Methods of Chemical Separation**

A survey of modern separation methods. Topics include liquid, gas, thin-layer, and ion-exchange chromatography; electrophoresis; sample preparation and extraction.

Lecture 3 hours.

Prerequisite: CH 305, CH 307, and CH 316.

**CH 556 3 credits****Magnetic Resonance Spectroscopy**

Introduction to the theory of electron paramagnetic resonance and nuclear magnetic resonance; applications in the study of molecular structure.

Lecture 3 hours; offered in alternate years.

Prerequisite: CH 317

**CH 560 3 credits****New Synthetic Methods**

Survey of preparation methods in organic chemistry and their application to the synthesis of complex molecules.

Lecture 3 hours; offered in alternate years.

Prerequisite: CH 251 and CH 252.

**CH 562 3 credits****Natural Products**

Isolation, structure elucidation, total synthesis, biogenesis, metabolism and physiological importance of natural products.

Lecture 3 hours; offered in alternate years.

Prerequisites: CH 251 and CH 252.

**CH 600 3 to 6 credits**

**Thesis Research**

Consists of original chemical research and the preparation of a thesis under the direction of a member of the chemistry faculty. This is required for the Master of Science degree in Chemistry.

Prerequisite: Departmental permission.

**CH 610 2 to 5 credits per term**

**Projects Research**

Original chemical research, required for Plan B Master's Degree. Written project report required

Prerequisite: Department permission.

**CH 620 2 to 5 credits per term**

**Library Research**

Survey of a particular topic in the chemical literature. Written final summary report required.

Prerequisite: Department permission.





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## Faculty and Fields of Interest

**Jan Bergandy** computer architecture; foundations of computer science

**Nurit Budlinsky** numerical methods

**Chi-hau Chen** artificial intelligence; signal and image processing

**John Gray** digital systems design; architecture

**Robert Green (chairperson)** software engineering; parallel architectures

**Adam Hausknecht** symbolic manipulators; foundations of computer science

**Richard Upchurch** social implications; educational applications

**Margery Zeller** software development; computer-assisted instruction

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## Computer and Information Science Major

**The Computer and Information Science programs and courses that follow are offered subject to final approval in 1984.**

The requirements for completion of a Bachelor of Science degree in Computer Science are:

1. Complete the following CIS core courses, each with a grade of 'C' or better.

CIS 111 Computer Programming

CIS 112 Freshman Seminar

CIS 211 Introduction to Program Design and Data Structures

CIS 212 Introduction to File Processing

CIS 213 Introduction to Computer Systems

CIS 214 Introduction to Computer Organization

CIS 311 Software Engineering

CIS 312 Programming Languages

CIS 313 Operating Systems I

CIS 314 Computer Architecture I

CIS 411 Seminar

CIS 412 Foundations of Artificial Intelligence

2. Complete two additional courses from the following CIS electives, each with a grade of 'C' or better:

- CIS 381 Social Impact of Science and Technology
- CIs 421 Introduction to the Theory of Computing
- CIs 422 Algorithms and Complexity
- CIS 441 Systems Analysis and Design
- CIS 442 Data Structures
- CIS 443 Process-based Design
- CIS 452 Database Systems
- CIS 454 Computer Graphics
- CIS 471 Compiler Design
- CIS 472 Database
- CIS 473 Operating Systems II
- CIS 474 Computer Architecture II
- CIS 475 Computer Networks

3. Complete the following non-CIS required courses:

- MA 111 Analytical Geometry and Calculus I
- MA 112 Analytical Geometry and Calculus II
- MA — Discrete Structure I
- MA — Discrete Structures II
- ENG 101 Freshman English I
- ENG 102 Freshman English II
- ENG 266 Professional Writing

4. Complete the humanities, social science, and literature requirements for the Bachelor of Science degree:

-Students must take 18 hours from the humanities and social sciences, with a minimum of 6 hours from each area. The humanities encompass: History, Philosophy, Art and Music (excluding applied courses), and Foreign Language. The social sciences encompass: Economics, Political Science, Psychology, and Sociology.

-Students must take 6 hours of literature, which encompasses: English Literature, Literature in a Foreign Language, or Literature in Translation. The Departments of English and Foreign Literature and Languages shall specify which courses satisfy this requirement.

5. Complete the science requirement for the Bachelor of Science degree:

-Students must take 9 hours of science courses. The science courses must be selected from the Biology, Chemistry, or Physics Departments; the courses must be ones which these departments would credit to a major in their areas. Also, at least two of the courses must be a sequence from the



same department. Among the introductory courses, the following satisfy the science requirement:

BO 121, 122 Biology of Organisms I, II  
 CH 151, 152 Principles of Modern Chemistry I, II  
 PH 111 Physics I: Mechanics  
 PH 112 Physics II: Waves and Optics  
 PH 211 Physics III: Electricity and Magnetism

The associated lab courses are optional; however, it is recommended that the students take them.

6. Complete 27 hours of free electives. It is recommended that students use these hours to broaden their education, complete a minor-major in another discipline, or take additional CIS or related electives consistent with their career interests. The following are CIS related courses offered through Mathematics and Electrical and Computer Engineering:

MA 211 Analytical Geometry and Calculus II  
 MA 212 Differential Equations  
 MA 331, 332 Statistical Methods I, II  
 MA 351, 352 Numerical Analysis I, II  
 MA 353 Applied Linear Algebra  
 MA 463 Math Modeling  
 ECE 371 Signals and Systems  
 ECE 464 Digital Systems Design  
 ECE 465 Microprogrammed Design  
 ECE 471 Communication Theory

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## Computer and Information Science Minor

To attain a Minor in Computer Science, a student must complete 18 credit hours of CIS courses, each with a grade of 'C' or better, including:

CIS 211 Introduction to Program Design and Data Structures  
 CIS 212 Introduction to File Processing

Nine credits of upper division (300-400 level) CIS courses are also required.

## Requirements

Please note that some of the courses are proposed and may not be offered initially in the sequence indicated.

First Year			Semester Credits:	First	Second
		Humanities/Social Science		3	3
ENG	101	102	Freshman English I, II	3	3
MA	111	112	Anal. Geo. & Calc. I, II	4	4
MA	263		Discrete Struct. I, II	3	3
CIS	111		Computer Programming	3	
CIS	211		Intro. to Program Design		3
CIS	112		Freshman Seminar		1
				16	17

Second Year			Semester Credits:	First	Second
		Humanities/Social Science		3	3
		Science Elective		3	3
CIS	212		Intro. to File Proc.	3	
CIS	214		Intro. To Comp. Organization		3
CIS	213		Intro. to Comp. Systems	3	
ENG	266		Professional Writing		3
		Free Elective		3	3
				15	15

Third Year			Semester Credits:	First	Second
		Humanities/Social Science		3	3
		Science Elective		3	
		Literature Elective			3
CIS	311		Software Engineering	3	
CIS	313		Operating Systems I		3
CIS	312		Programming Languages	3	
CIS	314		Comp. Architecture I		3
		Free Elective		3	3
				15	15

Fourth Year		Semester Credits:	First	Second
	Literature Elective		3	
	Free Elective			3
CIS	411 Seminar		3	
CIS	412 Intro. Artif. Intell.			3
CIS	Tech. Elective		3	3
	Free Elective		6	6
			15	15
Total credits: 122				

## Computer and Information Science Courses

### CIS 111 3 credits

#### Computer Programming

Algorithm development, syntax and semantics of a high level programming language, debugging and verification of programs. Concept of structured programming. Arrays, subroutines. Elementary system concepts (compilation, time-sharing).

### CIS 112 3 credits

#### Freshman Seminar

Structure of Computer Science as a discipline. Introduction to computer systems organization.

Prerequisite: Freshman standing.

### CIS 161 3 credits

#### Computer Programming BASIC

An elementary programming course designed for the student with no prior experience in data processing. Programming Language: BASIC.

### CIS 201 3 credits

#### Computer Literacy

An introduction to computers, the history of computers, and the social, political and philosophical impact of computers in society. Numerous computer systems (including personal computers) and computer applications will be studied. The BASIC programming language and "canned" programs will be introduced. This is a non-technical course that is designed to provide the non-science, non-technical student with a background knowledge of what computers are, what they do, and what their impact is on society.



**CIS 211 3 credits****Introduction to Program Design and Data Structures.**

Data structures such as stack, queue, list, tree, table. Concept of abstract Data Type, user-defined data types. Recursion and correspondence of recursive and nonrecursive algorithms. Large program organization (modularity, interface specification, program documentation). Program testing and performance evaluation.

Prerequisite: CIS 111

**CIS 212 3 credits****Introduction to File Processing.**

General files concepts. Sequential file processing, physical IO vs. logical IO, sort/merge, master file update. Random file processing, random master file update. Indexed file processing, index structures, single index files (ISAM) and multi-key files (VSAM).

Prerequisite: CIS 211 and Discrete Structures II

**CIS 213 3 credits****Introduction to Computer Systems.**

Computer structure and machine language. Data representation, instruction cycle, addressing techniques. Assembly language: basic concepts, subroutines, parameters; assembly process and error messages. Fundamental functions of operating systems; linking, relocation, and I/O processing. Concept of concurrent processing (process communication, control switching, deadlocks).

Prerequisite: CIS 211

**CIS 214 3 credits****Introduction to Computer Organization.**

Basic digital circuits, data representation and transfer, register transfer logic, memory organization and design. Automaton as a control implementation. Distributed control; microprogramming. Methods of analysis and synthesis of digital systems. Problem of interfacing. I/O organization.

Prerequisite: Discrete Structures I

**CIS 261 3 credits****Computer Programming-Fortran**

A course designed to give the student familiarity with digital computer methods and programming with emphasis on Fortran. 3 hrs. lecture

Corequisite: MA 101, 105 or 111

**CIS 262 3 credits****Introduction to Computer Science**

Problem solving in Pascal with emphasis on Programming style. Top-down design, structured programming and modular programming. An introduction to data structures and programming languages.

Prerequisite: CIS 261 or MA 132.

**CIS 263 3 credits****Data Structure**

Basic data structures: arrays, stacks, queues, linked lists, trees and graphs. Internal and external sorting. Algorithm analysis and complexity.

Prerequisite: CIS 262.

**CIS 311 3 credits****Software Engineering**

Development of large software systems. Requirements specification, design, implementation, and testing methodologies. Security and privacy of software. Software lifecycle with emphasis on control through documentation and review. Programming support environments. Organizational structures, project management and planning.

Prerequisite: CIS 211

**CIS 312 3 credits****Programming Languages**

Global properties of programming languages such as binding time of constituents, scope of declaration, subroutines, coroutines, storage allocation. Run-time representation of program and data structures. Implementation of a high level language. Overview of translation and interpretation oriented languages.

Prerequisite: CIS 212, CIS 213 strongly recommended.

**CIS 313 3 credits****Operating Systems I**

Operating system organization and design of system modules. command interpreters; system calls. resource management: file systems, memory management, CPU scheduling, disk-drum scheduling, deadlock handling; protection.

Prerequisite: CIS 213.

**CIS 314 3 credits****Computer Architecture I**

General organization of a computer system. Memory hierarchy. Emphasis on memory organization and management implementation. Local and long distance communication, bus, input-output organization and control. Pro-

grammed I/O and I/O processors. Interrupt handling. Processor organization; instruction set; arithmetic-logic unit; parallel and stack processors. Programmed and hardwired, central and distributed control. Prerequisites: CIS 213 and CIS 214.

### **CIS 381 3 credits**

#### **Social Impact of Science and Technology**

(Same as SOC 381) A look at the scientific and technological world view: the claim that tools are value neutral; that social and natural reality should be quantified; that knowledge should be treated as property. The course will heavily emphasize the computer and information revolution; examine the Oppenheimer and Rosenberg cases; and possibly look at genetic engineering, nuclear energy, and behavioral psychology. Prerequisite: Junior standing.

### **CIS 411 3 credits**

#### **Seminar**

Advanced topics in Computer Science. Prerequisite: Senior standing.

### **CIS 412 3 credits**

#### **Foundations of Artificial Intelligence**

Heuristic versus algorithmic methods, rational and heuristic approach, description of cognitive processes. Objectives of work in artificial intelligence, simulation of cognitive behavior, and self-organizing systems. Heuristic programming techniques. Examples of representative applications. Mind-brain problem and nature of intelligence. Prerequisite: Junior-senior standing.

### **CIS 421 3 credits**

#### **Introduction to the Theory of Computing**

Sequential machines, lexical analyzers, deterministic and non-deterministic machines, regular sets and grammars. Push-down stack machine, non-deterministic push-down machines and context free grammars. Linear bounded Turing machine and context sensitive grammars. Recursively enumerable grammars. Universal Turing machine, halting problem, computability and unsolvability. The Church thesis. Prerequisite: Junior standing.

### **CIS 422 3 credits**

#### **Algorithms and Complexity**

A survey of analysis of algorithms used in combinatorics, graph theory, numerical calculations, systems programming, and artificial intelligence. NP-Completeness. Prerequisite: CIS 442.



**CIS 441 3 credits****Systems Analysis and Design**

Analysis and development of software systems. Feasibility and system studies. Design and implementation; re-evaluation of software. Tools of systems analysis, charting, forms design, records, reports, and procedure writing. Methodologies and representations.

Prerequisite: CIS 212

**CIS 442 3 credits****Data Structures**

Advanced data structure representations. Directed and undirected graphs, sorting algorithms, memory management issues. Emphasis on time and space complexity of an abstract data type implementation.

Prerequisite: CIS 212

**CIS 443 3 credits****Process-based Design**

Design of systems composed of multiple, communicating processes (tasks), including distributed systems and real-time systems. Programming with ADA.

Prerequisite: CIS 473

**CIS 452 3 credits****Database Systems**

Use of DBMS software in the development of an information system. Overview of the ANSI/SPARC Study Group on Database Management Systems model. Relational database model techniques. Emphasis on user views necessary to support data management and retrieval.

Prerequisite: CIS 212

**CIS 454 3 credits****Computer Graphics**

Graphics devices. Two dimensional and three dimensional image representations and transformations. Graphics systems software architecture; graphics standards; packages.

Prerequisite: Junior standing and Applied Linear Algebra

**CIS 471 3 credits****Compiler Design**

Organization of a compiler including lexical and syntax analysis, symbol tables, object code generation, error detection and recovery, code optimization techniques, and overall design. Compilation techniques and run-time structures in a block-structured language.

Prerequisites: CIS 312 and CIS 421

**CIS 472 3 credits****Database**

Structures and algorithms for the implementation of DBMS software. Guidelines established by the ANSI/SPARC Study Group on Database management Systems. Methods for data encapsulation including the interaction of the internal level with operating systems access methods. Implementation techniques for the development of Data Definition Language and Data Manipulation Language.

Prerequisites: CIS 442 and CIS 471

**CIS 472 3 credits****Operating Systems II**

Concurrency. Process coordination and synchronization. Interprocess communication. Distributed systems. Recovery and reliability. Operating system design principles. System updating, documentation, and operation.

Prerequisites: CIS 313 and CIS 314

**CIS 474 3 credits****Computer Architecture II**

Concurrency models in processor design. Vector processors, pipeline processors, and multiprocessor systems. Fault-tolerant computers: principles and design. Symbol computers. High level language machines. Inference engines. New trends in computer architecture.

Prerequisites: CIS 313 and CS 314

**CIS 475 3 credits****Computer Networks**

Topology of computer networks. Physical transmission. Error handling. Protocols. Satellite, packet radio, and local networks. Network interconnection. Security. Applications of computer networks.

Prerequisite: Senior standing.

## Faculty and Fields of Interest

**David E. Berger** labor and regional economics

**Frances F. Esposito** industrial organization and antitrust policy, micro theory, econometrics

**Daniel L. Georgianna** urban and resource economics

**William Hogan (chairperson)** economic demography, econometrics

**John Ohly** monetary economics, international economics

**Mona Racine** development and international economics

## Economics Major

A major in Economics provides the student with a unique opportunity to blend a liberal arts education with training in corporate and government decision making. In addition to providing a sound theoretical foundation in economic theory and economic statistics, a major in Economics introduces the student to a variety of applied fields which focus on international, national and regional economic problems. Majors in Economics find employment opportunities with banks, insurance companies, public utilities, corporations, the federal government and with economic planning and forecasting groups. Economics is a preferred major for entrance into graduate schools of business and an ideal background for training in the field of law. A major in Economics provides strong preparation for teaching social studies. For recommendation for graduate work in economics students need to meet the requirements for honors in economics and take at least 12 hours in mathematics selected from the following: MA 111, 112, 211, 212, 221.



## Economics Minor

A minor in Economics may be elected by a student majoring in any other field. Eighteen credit hours are required and must include the following courses: EC 231, 232, 301, 311, (12 credits) (a) six credit hours chosen from 300 or 400 level courses in Economics or (b) EC 280 and three hours chosen from 300 or 400 level courses in Economics (students who have taken any other statistics course at the college level may not take EC 280 for credit). Independent study, directed study, or contract learning may not be applied toward the minor. Student must have, at the time of graduation, an average of at least 2.5 in all courses taken in Economics to qualify for the minor. Any degree candidate who has between 54 and 84 credits, with a cumulative grade point average of 2.0 and with a 2.5 grade point average in his or her major, may request admission to the minor. Before being admitted to the Economics minor, student must obtain approval of the Economics Department chairperson. Students accepted in the minor must complete six upper division credits after being admitted to the minor program.

## Requirements

For B.A. in Economics		Semester Credits
EC 280	Basic Economic Statistics	3
EC 301	Price Theory and Policy	3
EC 311	Employment and Income Theory	3
	Economic electives at 400 level	6
	at 300 level	6
	at any level	9
		30

A grade point average of at least 2.0 in all courses in Economics is required.

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**For B.A. in Economics with honors**

EC 280	Basic Economic Statistics	3
EC 301	Price Theory and Policy	3
EC 306	Topics in Mathematical Economics	3
EC 311	Employment and Income Theory	3
EC 333	Econometrics	3
EC 416	History of Economic Thought	3
	Economics electives at 400 level	6
	at 300 or 400 level	6
	at any level	6
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A grade point average of at least 3.2 in all courses taken in Economics is required for the degree with honors.

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**Economics Courses****EC 103 3 credits****Cities, Minorities and Poverty**

Review and analysis of major social problems faced by cities; emphasis on origin, causes and possible solutions for poverty and minority problems. Freshman elective.

**EC 105 3 credits****Economic Development**

The meaning of economic development. The interaction of economic, social and cultural forces in development. Widely different time periods will be considered. Freshman elective.

**EC 107 3 credits****Economics of Pollution**

Economic approaches to solutions of the pollution problem; the economics of the environment and of self-contained eco-systems. Freshman elective.

**EC 109 3 credits****International Economics**

An introduction to the world economy. The balance of payments and supply and demand for foreign exchange. The changing role of the dollar. Transnational corporations and their control. Rich vs. poor countries. Comparative advantage and specialization. The functions of the IMF GATT and UNCTAD. The European Community. Freshman elective.

**EC 111 3 credits****Jobs, Employment and Income**

Basic analysis of problems of economic growth, job creation and unemployment; structure of work and jobs will be explored, along with current issues surrounding the government's impact on inflation, taxation and economic planning. Freshman elective.

**EC 231 3 credits****Economics I**

Survey of American economy: its efficiency in allocating resources; price determination in product and resource markets under competition and monopoly; public policy on industrial concentration, agriculture, unions and income inequality. Sophomore and upperclass elective. Required of business majors.

**EC 232 3 credits****Economics II**

Survey of American economy: determination of GNP and national income; full employment, inflation, economic growth, money, banking and the Federal Reserve System; international trade and balance of payments; less developed economies. Sophomore and upperclass elective. Required of business major.

**EC 280 3 credits****Basic Economic Statistics**

A first course in statistics. Emphasis is on the applications of statistical methods to problems in economics and social sciences. Nature and sources of economic data are considered. Topics include descriptive statistics, probability, point estimation, interval estimation, hypothesis testing, analysis of variance, regression, correlation, time series and index numbers. Sophomore and upperclass elective. Economics majors are required to take either EC 280 or EC 333. Prerequisite: EC 231 and EC 232, or consent of instructor

**EC 301 3 credits****Price Theory and Policy**

The theory of price determination, resource allocation and income distribution is integrated with consideration of public policy questions. Sophomore and upperclass elective. Required in economics major. Prerequisite: EC 231



**EC 304 3 credits****Industrial Organization and Antitrust Policy**

Development of antitrust policy in the U.S. Discussion of tying arrangements, vertical integration, price discrimination, market structure and technological innovation, diversification, mergers and patents. Theoretical and empirical discussion of barriers to new competition in American industries. A Sophomore and upperclass elective. Prerequisite: EC 301 or permission of instructor

**EC 306 3 credits****Topics in Mathematical Economics**

Mathematical treatment of economic theory. Topics in microeconomics, macroeconomics, general equilibrium, and welfare economics will be considered. Though most models will be deterministic, some stochastic models will be treated. Required in economics honors major. Upperclass elective. Prerequisite: EC 231, EC 232, MA 111, MA 112, or consent of the instructor.

**EC 311 3 credits****Employment and Income Theory**

Theories of employment and income determination; the impact of government actions to stabilize economic activity in a market economy. Upperclass elective. Required in economics major. Prerequisite: EC 232

**EC 312 3 credits****Economic Growth and Stabilization**

Recent macroeconomic policy in the U.S. and other countries as applied to problems of unemployment, inflation, debt management, balance of international payments, growth and productivity. Upperclass elective. Prerequisite: EC 311

**EC 331 3 credits****Economics of Developing Countries**

Scenarios integrating social and economic goals. Two-gap models and real transfers; poverty; The World Employment Program and the New International Economic Order Multilateral organizations including the UN, UNCTAD, UNDP and the ILO. Control of transnational corporations. Multilateral vs. bilateral aid. Commodity indexation, buffer stocks and changing terms of trade. Upperclass elective. Prerequisite: EC 231 and 232

**EC 333 3 credits****Econometrics**

Introduction to econometrics including development of basic techniques of bivariate and multivariate linear regression analysis; use of lagged variables and dummy variables in model building; problems of multicollinearity, auto-correlation and heteroscedasticity. Sophomore and upperclass elec-

tive. EC 280 or EC 333 is required for an economics major. EC 333 is required for economics honors major. Prerequisite: EC 231 and EC 232 and EC 280, or permission of instructor

### **EC 335 3 credits**

#### **Resource Economics**

The economics of renewable and non-renewable; common and private resources. The focus of this course will be comparison between markets and planning in the use of resources. The international distribution and use of resources will also be covered. The fishing industry in New England will be a featured subject. Prerequisite: EC 231 and EC 232

### **EC 342 3 credits**

#### **Labor Economics**

The labor force. Wages in competitive and non-competitive markets. Wage structures. Inequalities and discrimination. Impacts of unions and social standards. Indexation, inflation and unemployment. Sophomore and upper-class elective. Prerequisite: EC 231 and EC 232

### **EC 343 3 credits**

#### **The Economics of Sex and Race Discrimination**

A course in the theory of labor markets and the problem of discrimination. Current problems facing women and minorities will be examined. Existing programs and trends will be explored. Prerequisite: EC 231 and EC 232

### **EC 352 3 credits**

#### **Economics and Technology**

The interaction of economics and technology. Invention and economic feasibility as forces in technological change. Invention, innovation and research development within the firm. Sophomore and upperclass elective. Prerequisite: EC 231 and 232

### **EC 362 3 credits**

#### **Monetary Theory and Policy**

Structure of the American monetary and banking system. Monetary theory is developed and monetary policies are considered. Upperclass elective. Prerequisite: EC 231 and EC 232

### **EC 416 3 credits**

#### **History of Economic Thought**

The development of economic thought with emphasis on the period beginning with Adam Smith and ending with J.M. Keynes. Methodological issues in economics are also considered, and questions concerning the current status and the future directions of the profession are addressed. An upper-class elective. Required in economics honors major. Prerequisite: EC 231 and EC 232

**EC 417 3 credits****Economics and Population Analysis**

The measurement and behavior of the major demographic variables, fertility, mortality, and migration, and their role in determining the growth and age distributions of populations. Applications include historical demography, the relation of population growth to economic development, urban concentration and crowding, environmental deterioration, the aging of populations, and zero population growth. Population policy and prospects for both the near future and the longer run are also considered. Upperclass elective. Prerequisite: EC 231 and EC 232; or consent of instructor. This is a multidisciplinary course, and students at the junior or senior level in majors other than economics are encouraged to consider the course even though they may not have taken EC 231 and EC 232.

**EC 431 3 credits****International Trade**

Analytical development of the standard theory of international trade and of new trade theories and their application in predicting the nature of trade patterns and the gains from trade. The political economy of trade policy: free trade versus protectionism and the theory of custom unions; the effect of integration on the structure of intra and extra-regional trade; the creation of integrated program on commodities and its effect on the structure of trade. Upperclass elective. Prerequisite: EC 231 and 232

**EC 432 3 credits****Public Finance**

The theory of public goods and collective choice, incidence and distortions of political economy of program evaluation. Upperclass elective. Prerequisite: EC 231 and EC 232

**EC 433 3 credits****International Finance**

Analyzes the structure and operation of the international monetary system and the role of exchange rates in eliminating payments disequilibria. Evaluates the performance of flexible exchange rates, and the effects of exchange rate management. Describes the linkages between external credit markets (Euromarkets) and domestic money markets and the nature of public policy in the international money markets. Upper class elective. Prerequisite: EC 231 and EC 232



**EC 451 3 credits****Problems in Regional Growth**

Analysis of regional growth and stagnation with special emphasis on New England Development strategies and programs will be explored. Upper-class elective. Prerequisite: EC 231 and EC 232

**EC 452 3 credits****Manpower and Regional Development**

Review of labor market problems and programs in growing and depressed regions, with special emphasis on New England. Attention focused on the impact of education, training and government manpower programs. Upper-class elective. Prerequisite: EC 231 and EC 232

**EC 453 3 credits****Work, Jobs and Income**

Study of changes in the labor force, the impact of labor market processes and how they effect work motivation, job performance and income distribution. Upperclass elective. Prerequisite: EC 231 and EC 232

**EC 461 3 credits****Urban Economics**

The political economy of cities, intraurban utilization of space, the economics of urban problems and policies. Upperclass elective. Prerequisite: EC 231 and EC 232

**EC 501 3 credits****Theory of the Household and the Firm**

Analytical development of the following topics: the theory of utility and preference and consumer behavior, the theory of production (one and two variable inputs) and cost, the theory of the firm (perfect competition, monopolistic competition, oligopoly and monopoly), the theory of distribution and the theory of general equilibrium. For graduate students.

**PB 502 3 credits****Economic Analysis and Policy I**

An introduction to microeconomics for MBA students. Develops microeconomic theory of households and firms, and applies the theory to various markets. Emphasis on principles of decision making. Considers implications of different market organizations, from competition to monopoly, on the structure of the price system and patterns of resource allocation.

**PB 503 3 credits****Economic Analysis and Policy II**

An introduction to macroeconomics for MBA students. Develops macroeconomic theory and analyzes production, employment, and inflation. Fiscal and monetary policies and their effects on the economy are considered. The role of the banking system is studied. Economic statistics and the systems that generate economic data are examined. Balance of payments, currency exchange rates, and international economic policy are introduced.

Prerequisite: PB 502

## Faculty and Fields of Interest

**Walter Cass** philosophical, historical, and psychological foundations of education; group dynamics and interpersonal relations; adult education; methods of language instruction

**Catherine Downey** elementary education; psychology; creative aspects of teaching; student teaching

**Patrick Foley** social foundations of education, consumer education

**Cynthia Kruger (chairperson):** curriculum development (K-12); training teachers; behavioral objectives-needs assessment, model building; bilingual education curriculum

**William Philbrick** the spectrum of special education for children with special needs

**William Rotondi** counseling and psychotherapy; individual and group

**Lawrence Singleton** tests and measurements; educational research; evaluative research

**Doris Thibault** reading; mathematics; individualized instruction; elementary education; curriculum development-elementary and secondary; bilingual education curriculum; teacher preparation

**Milton Young** transpersonal education; life-long personal growth; humanistic education; in-service education; innovations and change

## Statement of Purpose

By means of course work, field experiences, and close student-faculty cooperation, the SMU Education Department encourages students to desire to become dedicated, innovative teachers and to understand and appreciate the problems and potential of the American educational system, and also to become more effective citizens and parents in our society. In the process of achieving these purposes, students who elect the complete program become eligible for teacher certification in the Commonwealth of Massachusetts and in most other states.



## Education Department Philosophy

The SMU Education Department believes that good teachers are essential role models for children in the ongoing development of a dynamic democratic society. For this reason, the Department encourages students to become proficient in various important teaching technologies and to become as open and self-actualizing as their personalities allow. In keeping with these aims, the Education Department faculty attempts to share and develop with students an enthusiastic interest in educational research and its findings while also demonstrating in action the importance the Department places on the democratic process, the scientific methods, cooperative interpersonal relationships, and aesthetic values. The Department realizes that its philosophy is really a matrix of goals which are seldom perfectly achieved in human experience. In recognition of this fact, and in keeping with the meaning of the goals themselves, the Department encourages a continuous evaluation of its work by students and faculty members.

At the secondary level, focus is upon the student's mastering an academic discipline and also achieving a solid intellectual foundation in professional education through theoretical and practical "hands on" course work.

At the elementary level, focus is upon the student's gaining a general liberal education as well as an understanding of the role of the elementary school in American education, and upon practicing specific methods of elementary school teaching and classroom management. The course work reflects traditional as well as contemporary values in elementary school methodology.

## Elementary Certificate Requirements

Sophomore Year		Field-Based Experience	Credits
<b>Courses</b>			
MU	316	Music Education	3
ED	460	Arts for the Elementary Class	3
<b>Select One</b>			
ED	201	Philosophy of Education	3
ED	210	History of Education	3
ED	409	Sociology of Education	3

<b>Select One</b>				
ED	205	Human Development and Learning		3
ED	310	Understanding the School Child		3
PY	201	Child Psychology		3
<b>Junior Year</b>				
ED	301	Elementary Curriculum Methods I	15 Hours Observation	3
ED	303	Elementary Curriculum Methods II		3
ED	304	Elementary Curriculum Methods III	30 Hours Tutorial and Small Group Work	6
ED	420	Reading in the Elementary School	15 Hours Tutorial	
<b>Senior Year</b>				
ED	414	Practicum	400 Clock Hours	12
ED	416	Workshop		3

## Middle and High School Certificate Requirements

<b>Sophomore Year</b>				
<b>Courses</b>		<b>Field-Based Experience</b>		<b>Credits</b>
ED	100	Early Field Experience	6-9 Hours Per Week	3
<b>Select One</b>				
ED	201	Philosophy of Education		3
ED	210	History of Education		3
ED	409	Sociology of Education		3
<b>Select One</b>				
ED	205	Human Development and Learning		3
PY	301	Adolescent Psychology		3

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**Junior Year**

ED 306	Middle and High School Curriculum	1-2 Hours Per Week	3
ED 307	Middle and High School Methodology	1-2 Hours Per Week	3
Special Methods Course in Discipline			3

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**Senior Year**

ED 415	Practicum	400 Clock Hours	12
ED 417	Workshop		3
Reading Course			

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**Education Courses****ED 100 3 credits****Early Field Experience in the Secondary School**

Early Field Experience is for students to explore career interest through a secondary school practicum that provides an opportunity to confirm interests in specific grade levels and subject areas. The course will be taken during the second semester of the sophomore year and will be mandatory for the initial acceptance into the full-fledged internship program.

**ED 132 3 credits****Organization of Library Materials**

This course provides a comprehensive treatment of books and libraries to emphasize the variety of library materials, their organization for retrieval of information, and their potential for effective use.

**ED 201 3 credits****Philosophy of Education**

This course presents an introduction to major issues and problems in philosophy of education. Examination of some of the traditional areas of philosophical concern, and their relevance to the teacher-learning process is undertaken.

**ED 205 3 credits****Human Development and Learning**

This course presents a study of central development tendencies and stages as these underlie the unfolding of human potentialities. Consideration will be given to those conditions and factors which influence learning and forgetting. The nature of intelligence, the nature of learning, and the meaning of personality will be examined in the context of the teacher-learning process.



**ED 210 3 credits****History of Education**

This course analyzes the history of education in American culture in the context of social and intellectual developments. Emphasis will be given to the development of higher education, especially to the emergence of the university in America.

**ED 220 3 credits****Interpersonal Communications**

Effective communication occurs through a process of human interaction. Students in this course study the nature of that interaction, in theory and experientially, through examination of the parts of the process- person, message, environment, and relationship.

**ED 230 3 credits****Consumer Education**

This course offers an introduction to current issues and problems in consumer education. Among the areas to be covered are: truth-in-lending laws; deceptive pricing; door-to-door sales; repairs and services; automobile transactions; insurance; over-the-counter and prescription medicines; home-improvement transactions; business opportunities; buying a house; savings and investments.

**ED 301 3 credits****Elementary Curriculum Methods I**

This course is designed to examine theoretically and practically the curriculum of the elementary school. It also includes a study of health and physical education. A healthy body and a healthy mind are of equal importance. The course maintains that concern with the appropriateness of the environment and with provisions for developmental and remedial services are requisites for productive instruction. As part of the course opportunities to observe basic methods and techniques of teaching and the uses of curriculum materials are provided. (Observations in an area school - 15-20 hours)  
Corequisite: ED 303.

**ED 303 3 credits****Elementary Curriculum Methods II (Mathematics and Science)**

This course includes the study of theory and application in classrooms of Mathematics and Science. Relying on Piagetian development principles, students realize the importance of selecting materials and techniques wisely, especially the use of concrete material in curriculum planning. They also learn to recognize the varied needs of students.  
Corequisite: ED 301.

**ED 304 6 credits****Elementary Curriculum Methods III**

This course is designed to extend the basic methods and techniques of teaching into the specific areas of Language Arts and Social Studies. It is planned for those who will be teaching in an elementary school. Much stress is placed on the humane, kind, and understanding treatment of children. Lesson plans and units are developed. This course includes 30 hours of tutoring in area schools.

**ED 306 3 credits****Curriculum Development in the Secondary School**

This course will introduce students to concepts, trends, and terminology associated with curriculum development and implementation in secondary schools. Emphasis will be placed on curriculum patterns in all disciplines, particularly subject matter integration. Students will be required to research articles, on curriculum trends, and reforms along with a fifteen-hour practicum in their respective disciplines and grade levels.

**ED 307 3 credits****Teaching Methodology in the Secondary School**

This course encourages an understanding of the traditional and innovative strategies utilized in teaching at secondary school levels. Students are required to prepare a unit and lesson plans in their respective subject areas. They are also responsible for the reading of texts which gives them some insight into the effective teaching of secondary school students. A practicum of fifteen-hours is also required.

**ED 308 3 credits****Creative Writing and Teaching**

Creative and functional writing are two of the most important tools in elementary education. Skills and techniques in motivation will be the main interest of this course.

**ED 309 3 credits****New Curricula in the Secondary School**

An in-depth study of the new curricula in the disciplines of secondary school forms the core of this course. A knowledge and understanding of current curriculum development projects and research in the respective disciplines of students enrolled along with the development and implementation of innovative materials are the major goals. This course can be utilized in completing teacher certification requirements.

**ED 310 3 credits****Understanding the School Child**

This course is designed to study intensively the dynamics of working with children from pre-school through secondary school age. It includes the psychology of patterns of behavior and growth and development, and their application in the classroom situation. (Preference given to those students interested in education. Permission of Professor for others.)

**ED 312 3 credits****Teaching the Disadvantaged**

Characteristics and problems of the disadvantaged student in both the elementary and secondary grades and ways of meeting his educational needs and interests will be the concern of this course. Emphasis will be placed on innovations and appropriate materials and activities.

**ED 313 3 credits****Activities Workshop in the Elementary School**

This workshop is designed to develop creative teaching and learning. Various techniques, uses of materials and creative approaches for instruction, along with activities for the children, will be included. All areas of the curriculum will be covered.

**ED 315 3 credits****Reading Improvement in the Secondary School**

The development of knowledge and understanding of corrective and developmental reading forms the core of this course. Causes of reading difficulties among secondary school students is discussed with effective means of remedying difficulties. A knowledge of the study skills needed by senior high school students and strategies for teaching these skills is also discussed.

**ED 316 3 credits****Diagnostic and Remedial Techniques in Reading**

This is a basic course for the classroom teacher. It will investigate factors contributing to reading disabilities, methods of diagnosis and treatment of reading problems.

**ED 317 3 credits****Teaching Social Studies in the Secondary School**

Objectives, strategies and material development in the social studies classroom will be the foci of this course. The teaching of history, geography, political sciences, anthropology, sociology, psychology and philosophy will be discussed in terms of student modalities, needs and interests. Units, lesson plans, book and periodical reporting are course requirements in addition to



class and field experience.

Prerequisite: Twelve upper-division credits in one or more of the following fields: history, geography, political science, anthropology, sociology, psychology, and philosophy.

**ED 318 3 credits**

**Analysis of Reading Difficulties**

This is an advanced course for experienced teachers. It is designed to give the classroom teacher special skill in analyzing and removing reading deficiencies.

**ED 321 3 credits**

**Interpersonal Communications Workshop**

In this intermediate course, preference is given to those students who have taken ED 220. It assumes general knowledge of communication theory, though there will be review of same. Individual projects in the larger community with specific research will highlight the content of the course.

**ED 322 3 credits**

**Behavioral Analysis and Classroom Management in Special Education**

This course delineates methods and techniques of obtaining useful and positive classroom behavior from children. analysis of basic reaction patterns and utilization of appropriate compensatory measures are stressed.

**ED 331 3 credits**

**Methods of Teaching a Foreign Language**

This course presents an introduction to the objectives, principle and methods of teaching a second language, and a consideration of classroom procedures at different levels. The construction, utilization and evaluation of instructional materials are included.

**ED 333 3 credits**

**Exceptional Child I**

This course is devoted to the problems of communications and understanding in children as exemplified by the labels "deaf," "hard of hearing," "aphasic," "physically handicapped," "speech and hearing handicapped."

**ED 334 3 credits**

**Exceptional Child II**

This course considers problems in children and adults as represented by the labels "emotionally disturbed," "mentally retarded," and "learning disabled."

**ED 335 3 credits****Influences of Pre- and Post-natal Deviations on Growth and Learning**

This course delineates the many factors affecting the organism from conception through early childhood, details the effects of deviations, and specifies the possible sequelae in behavioral and learning patterns.

**ED 336 3 credits****Transpersonal Education**

The goal of Transpersonal Education is an understanding of the development of analytical and intuitive functioning. An experience-based learning environment supports theoretical understanding and internal awareness. Content includes an examination of altered states of consciousness, and process of shifting from outer to inner states through the use of techniques such as fantasy, relaxation, music, body movement, sensory stimulation, and natural phenomena as they relate to teaching.

**ED 338 3 credits****Recent Trends in Elementary Education**

The main focus of this course will be on educational options. Current research will be studied as will its application to the contemporary classroom.

**ED 339 3 credits****Educational and Psychological Measurements**

This course is an introduction to elementary principles of statistical analysis as well as to those educational and psychological instruments and methods used in the measurement and evaluation of the psychological characteristics of people.

**ED 347 3 credits****Affective Education in the Classroom**

This course involves experiential and didactic learning of how to teach values clarification, self-awareness and problem-solving.

**ED 350 3 credits****Educational Research**

The primary purpose of this course is to assist students to evaluate work conducted in the area of educational research. Studies include true experiments, quasi experiments, descriptive studies, and sampling methods, along with other areas pertinent to educational research.

**ED 353 3 credits****Education: Administration and Supervision**

This course will serve as a general introduction to contemporary practices and policies in educational administration and supervision. Instruction will be by lecture, case studies, and student reports. Among the topics to be covered are curriculum planning and design, staff organizations and relationships, and student and community relationships.

**ED 360 3 credits****Activities Workshop in the Elementary School II**

This course is designed to develop creative teaching and learning. Included will be various techniques, uses of materials and creative approaches for instruction, along with activities for children. All areas of the curriculum will be covered.

**ED 362 3 credits****Analysis of Children's Behavior and Learning in Special Education**

Directed toward strengthening the abilities of the teacher to assess "the child before you," utilizing behavioral observations in class, varieties of behavior protocols, information evaluations, and both criterion-referenced and norm-referenced techniques.

**ED 364 3 credits****Development of Individualized Educational Plans**

This course suggests means of selecting, adopting and designing materials for instruction based on detailed assessment and evaluation of the child.

**ED 366 3 credits****Principles of Guidance**

This course examines and analyzes the development of significant trends and directions of guidance services, and deals with issues and challenges confronting the practitioner of guidance.

**ED 367 3 credits****Principles of Counseling: Theory and Practice**

This course is an intensive study of counseling techniques and processes through the use of interviews, case studies, tapes and films.

**ED 370 3 credits****Urban Education**

This course explores educational problems which have been encountered by the urban child. There will be special emphasis on institutional racism, on teachers' attitudes and on studies that have been utilized by the academic community to reinforce the concept that some children are cognitively inferior to other children.



**ED 391 3 credits****Reading Workshop**

The purpose of this workshop is to consider the various means of individualizing reading instruction. The skills involved in the reading process will be discussed. Teachers will be encouraged to develop a resource file of materials and activities for reinforcing the basic reading skills.

**ED 393 3 credits****The Newspaper as a Tool for Reading Instruction**

Analysis of basic reading skills (comprehension, vocabulary, development), transfer of these basic skills to content area reading, identification of specific reading needs, correlation of reading instruction with student need assessments, and the development of reading materials reflecting reading skills and student needs are addressed through the use of the newspaper as a tool in reading instruction. This reading certification course is designed for teachers in grades K-12.

**ED 396 3 credits****Instructional Media**

Understanding the application of diversified audio-visual equipment and techniques will form the core of this course. A workshop approach, utilizing the Audio-Visual Center at SMU, will encourage more effective use of audio-visual material in the classroom.

**ED 402 3 credits****Tests and Measurements**

This course is concerned with the development and use of tests; the application of measurement devices in teaching, evaluation and research. It deals with assumptions of testing and observation, the development and utilization of objectives, and basic statistics of measurement. This course is required by most graduate schools of education.

**ED 403 3 credits****Applied Aesthetics for the Classroom**

This course will act as a guide for elementary teachers in becoming comfortable with the visual arts, film, and theatre/television media. It will meet the needs of the classroom teachers in the most pressing challenge confronting educators today, learning how to become effective communicators.

**ED 406 3 credits****Seminar in Guidance and Counseling I**

The work of this seminar consists of an analysis and discussion of contemporary counseling procedures in relation to personality and behavior. The theoretical principles and practical applications of various modalities will be examined in association with sound-film demonstrations of the related practices.

**ED 407 3 credits****Seminar in Guidance and Counseling II**

This seminar entails advanced work and research in matters that relate to Guidance and Counseling. The seminar will be organized into topics clustering around the interests of students. Each will undertake a research project followed by a presentation to the group for examination and criticism.

**ED 409 3 credits****Sociology of Education**

This course presents a study of social processes underlying education. Major areas covered include an examination of the current social forces affecting education, the place of the school in American culture, the impact of social stratification on education, and the role of the teacher in a period of rapid social change.

**ED 410 3 credits****Educational Measurements**

The primary purpose of this course is to assist students to evaluate research conducted in the area of descriptive and inferential statistics. concepts such as central tendency, correlation, regression, variability, T-test, analysis of variance, Chi-square, and hypothesis testing will be discussed in depth.

**Ed 411 3 credits****Children's Literature in the Elementary School**

Since the "Right to Read" is all inclusive, participants will survey all reading available for children. Part of the time will be devoted to writing children's stories.

**ED 413 3 credits****Teacher Self-Evaluation and Supervision**

In this course, participants will clarify their teaching goals and set criteria for measuring the extent to which their goals are being met. Teams of participants will develop their skills in systematically observing and analyzing the process and product of teaching-learning situations. There will be audio and/or video taping, as well as peer interaction and coding systems.

**ED 414 12 credits****Practicum (Elementary)**

This practicum is a fifteen-week full-time classroom experience under the direction of university faculty and cooperating classroom teachers.

**ED 415 12 credits****Practicum (Secondary)**

This practicum is a fifteen-week full-time classroom experience under the direction of university faculty and cooperating classroom teachers.

**ED 416 3 credits****Workshop (Elementary)**

This workshop includes small group meetings, workshops, and discussions with university faculty and other key school personnel. It is concerned with critical incidents and issues arising from and related to the interns' actual teaching experiences. It is a required part of the Practicum.

**ED 417 3 credits****Workshop (Secondary)**

This workshop includes small group meetings, workshops, and discussions with university faculty and other key school personnel. It is concerned with critical incidents and issues arising from and related to the complex reading process. Instructional materials and organizational patterns to promote growth in basic abilities will be discussed. It is a required part of the Practicum.

**ED 420 3 credits****Teaching Reading in the Elementary School**

The purpose of this course is to develop some understanding of the complex reading process. Instructional materials and organizational patterns to promote growth in basic abilities will be discussed.

**ED 422 3 credits****Sensitivity Training for Teachers**

This course presents a practical laboratory experience in the study of the behavior of groups and the behavior of individuals within a group.

**ED 426 3 credits****Workshop in Early Childhood Education**

In this course students will be expected to create and use learning experiences in art, music, language, literature, drama, nature study and human interrelationships. Prerequisite: Any course in Early Childhood Education, current work with young children, or permission of instructor.

**ED 432 3 credits****Testing for Teachers**

This course prepares teachers to make informal tests for students at the elementary and secondary levels.

**ED 433 3 credits****Workshop in Transpersonal Education**

This workshop offers an experience-based learning environment for an intensive exploration of intuitive aspects of the individual. Content includes a study of a new image of man, alternative states of consciousness, impulses toward a harmonious approach to living, and recent physiological research on intuition and creativity. Prerequisite: Transpersonal Education or permission of instructor.



**ED 451 3 credits****Contemporary Issues and Challenges**

This course is designed to help students understand contemporary problems such as drugs, venereal disease, sexism, racism, along with other topics in relation to the school.

**ED 455 3 credits****Behavior and Learning**

This course examines various learning variables conceptualized by psychoanalytic and operant learning theory.

**ED 457 3 credits****Education and Mental Health**

This course will examine the issues and techniques involved in the early detection, diagnosis, and evaluation of mental, moral, social and educational problems including learning disabilities.

**ED 460 3 credits****Arts for the Elementary Class**

A number of fundamental techniques will be presented experientially to students preparing to teach grades K-6 that will help a classroom teacher who is not a specialist in art. Various principles of design and kinds of materials available inexpensively are introduced. The range of complexity in performance is based upon the developmental levels of children. The course stresses the integration of art activities with other elementary curriculum disciplines.

**ED 485 3 credits****Career Information and Placement**

This course will include theory and research in career development, functions of occupational information in guidance, the role of the counselor in placement, and models for an effective placement office.

**ED 495 3 credits****Independent Study**

Additional courses needed for teacher certification, methods courses in specific disciplines, reading, etc. terms and hours will be arranged. Confer with appropriate members of the Education Department.

**ED 496 3 credits****Directed Study**

Confer with Department Chairperson and Director of Teacher Certification.

## Faculty and Fields of Interest

**Marie Ahearn** American literature

**Nathaniel Atwater** Anglo-Saxon and medieval literature, Chaucer

**Americus Cleffi** World literature, creative writing

**Tish Dace** contemporary drama, Black drama, women's studies, comparative drama

**Raymond Dumont** composition theory, professional writing

**Joseph Foley** professional communications, technical writing, computer applications

**Louise Habicht** American literature, Southern renaissance

**Everett Hoagland** Black literature, creative writing

**Ann Howe** Shakespeare, 16th century Renaissance literature

**Vernon L. Ingraham** modern British literature, Irish literature, modern poetry

**Barbara Jacobskind** American literature, women's literature

**Joan Kellerman** advanced composition, remedial writing

**John M. Lannon** advanced composition, professional writing

**Richard Larschan** 18th century English literature

**Celestino D. Macedo** composition and rhetoric

**James E. Marlow** Victorian novel, 19th century British literature

**Margaret Miller** 19th century novel, women's literature

**James M. Nee** comparative literature, film

**William P. Nicolet** 16th century British literature, literary criticism

**Peter Owens** Journalism

**Margaret Panos** American literature, writing instruction

**Richard Reis** romanticism, Old English, experimental novel

**Alan Rosen** Victorian literature, bibliography

**Yvonne Sandstroem** 17th century British literature, Milton

**Roger Sorkin** Shakespeare, comparative drama, contemporary drama

**Edwin J. Thompson (chairperson)** modern novel, contemporary literature

**Robert Waxler** romanticism

**Charles White** American literature, film

In scheduling its courses, the Department recognizes its obligations to its English majors—a group that includes those who intend to go on to graduate study, those who intend to enter the teaching profession, and those who plan careers in such areas as public relations, editorial work, journalism, creative writing, personnel work, and the like. The Department also recognizes its obligations to non-English majors—those students who elect English courses in order to gain some acquaintance with the rich cultural heritage that English, American, and comparative Literature provide, and those who, through advanced courses in writing, wish to improve their powers of communication.

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## English Major

To receive a degree with a major in English, the student must have demonstrated his or her ability to read intelligently and perceptively in such genres as imaginative literature in fiction, poetry, and drama; in works of literary criticism and literary history, and in works dealing with the nature of language itself. A candidate must also demonstrate the ability to write effectively (for those whose chief interest is in practical or creative writing, the Department offers an option), to use a library efficiently and honestly, to deal critically with generalizations about historical periods and genres, and to handle a variety of critical questions with some maturity.

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## English Minor

Requirements for the minor in English includes:

1. 9 credits of survey plus Shakespeare (all 300 level)  
surveys must be taken in sequence.

A survey of American Lit. II (not required of majors) would be acceptable here.

Possible combinations:

- a. 3 English surveys plus Shakespeare;
  - b. 1 English survey plus Shakespeare plus 2 American surveys;
  - c. 2 English surveys plus Shakespeare plus 1 American survey; and
2. 9 other credits: total of 21 credits.

There is no requirement for a seminar. A minimum of 21 credits will be required for the minor.

Students who have a minor in English, like students majoring in English, will be allowed to apply courses already used to meet "distribution requirements" retroactively, after declaring the minor.



A minor may only be declared by a student who has a 2.5 index in his or her major. A minimum of 2.0 index, the same as for English majors, is required for minors.

Approval of Chairperson can be granted at any time before graduation if the proper courses have been taken. Minors have "the same registration rights" in the department's limited-enrollment courses as majors have. A minor may only be declared after 54 credits have been accumulated. Students are allowed to declare minors as late as their senior year at SMU.

The minor in writing will consist of 4 writing courses and 3 literature courses, for a total of 21 credits (of which 9 must be at the upper division level).

Possible combinations of writing courses:

1. Advanced Composition (260) plus Technical Communications (266) plus Business Communications (265) plus Advanced Prose Writing and Editing (453);

2. Advanced Composition (260) plus 2 courses in creative writing plus either a third creative writing course or Advanced Prose Writing;

3. Advanced Composition (260) plus Journalism I and II (262, 263) plus Advanced Prose Writing (453).

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## Requirements

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		Credits
ENG 300, 301, 302	A three-semester sequence of British Literature from Beowulf to Hardy and taken in the proper sequence	9
ENG 303	Survey of American Literature 1	3
ENG 319	Shakespeare	3
	A Seminar	3
	9 additional credits taken from "300" offerings	9
	A minimum of 12 credits drawn from any upper level English offering (that is, "200", "300" or "400")	12
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### Writing Concentration

Because of the continuous demand for those skilled in the art of communication, the Department also offers a concentration in writing. The following are the requirements:

1. ENG 300, ENG 301, ENG 302 (Survey of British Literature - must be taken in sequence).
2. ENG 203 - Survey of American Literature I.
3. A minimum of 3 additional credits at the "300" level.
4. ENG 260 - Intermediate Composition
5. 12 credits (including 3 credits at the "400" level) drawn from the English Department's writing course offerings.
6. An additional 9 credits in literature courses offered by the English Department (level unspecified) for a total of 39 credits.

Note: Additional writing courses and/or English non-literature English courses (e.g., film, speech, linguistics) may be elected but may not be offered in fulfillment of the 39 credit minimum.

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### Writing Courses Offered

ENG 260	Intermediate Composition
ENG 261	Techniques of Critical Writing
ENG 262	Journalism I
ENG 263	Journalism II
ENG 264	Feature Story and Article Writing
ENG 265	Business Communication
ENG 266	Technical Communication
ENG 267	Creative Writing: Poetry
ENG 268	Creative Writing: Fiction
ENG 269	Creative Writing: Drama
ENG 450	Advanced Poetry Workshop
ENG 451	Advanced Fiction Workshop
ENG 454	Advanced Journalism Workshop

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## Honors Program

### 1. Admission:

Qualifications for Admission: include a minimum grade point average in English of 3.3, plus recommendation by a member of the department willing to serve as sponsor.

### 2. Requirements:

The program involves a closely supervised, two semester (6 credit) investigation into some literary topic devised largely by the student, and requiring a substantial amount of independent reading and library-based research.

The program consists of two separable halves: The first part is intensive reading and study in the subject area of the student's proposal, based on the agreed-upon book list. By the end of Semester I the student must (1) present a written proposal for an Honors Thesis, and (2) take a written examination in the area of study—both to be administered and graded by the faculty sponsor. (In this way the student may receive 3 credits and a grade even if he or she decides not to continue in the full program. Also based on the outcome of written work to date, the faculty member can assess whether or not to permit the student to continue—a grade of 'B' or better is required.)

In the second semester the student proceeds to the Honors Thesis itself, and a grade is awarded on the basis of the final paper. However, "Honors" itself would be awarded separately, according to criteria set forth below. (Hence it will be possible to make independent decisions on the awarding of "Honors," or mere credit.)

### 3. Criteria and Methods of Evaluation:

A three person faculty committee—preferably one of them a specialist in the field under investigation—will judge all written work and administer an oral examination on the subject of the Honors Thesis (the student is entitled to select one of his/her examiners). This committee will then award "Honors" or not, on the following basis: (1) overall seriousness of purpose; (2) mastery of scholarly methodology; (3) sophistication of insights achieved; (4) ability to relate findings verbally.

### 4. Implementation:

Each spring the Department will inform all Junior English Majors with the minimum grade point average that they qualify to participate in the Honors Program, and indicate what the program entails. They will be responsible for selecting their own sponsors; and no Department member will be expected to direct more than one Honors student per year.



## English Courses

Note: ENG 101 and ENG 102 are prerequisites for all upperclass English courses unless otherwise noted.

### **ENG 101 3 credits**

#### **Freshman English I**

The aim of the course is to develop the student's ability to write clear, correct, effective English that reflects logical thinking and mature judgment.

### **ENG 102 3 credits**

#### **Freshman English II**

The primary purpose of ENG 102 is to introduce the student, through a series of reading in fiction, drama, and poetry, to the basic principles of literary analysis.

### **ENG 111 1 credit**

#### **Journalism Laboratory I**

Prerequisite: Permission of instructor.

### **ENG 112 1 credit**

#### **Journalism Laboratory II**

Prerequisite: Permission of instructor.

### **ENG 113 1 credit**

#### **Journalism Laboratory III**

Prerequisite: Permission of instructor.

### **ENG 200 3 credits**

#### **Studies in Literature**

Selected readings dealing with a special topic selected by the instructor.

### **ENG 201 3 credits**

#### **Major British Writers**

Selected works, from several genres, of outstanding British authors.

### **ENG 202 3 credits**

#### **Major American Writers**

Selected works, from several genres, of outstanding American authors.

### **ENG 203 3 credits**

#### **Survey of World Literature I**

A study of selected masterpieces from the Golden Age of Greece to the Renaissance.

**ENG 204 3 credits****Survey of World Literature**

A study of selected masterpieces from the Renaissance to the present.

**ENG 205 3 credits****Science Fiction**

A study of typical works of fantasy and speculation.

**ENG 206 3 credits****Detection Fiction**

A study of famous mystery, suspense, and detective fiction.

**ENG 207 3 credits****Narrative Literature**

Selected works of long and short fiction as illustrative of the characteristics of the genre.

**ENG 208 3 credits****Myth and Literature**

An exploration of the role of myth in the structure and meaning of poetry, fiction, and drama.

**ENG 209 3 credits****The Bible as Literature**

The Bible from the Old and New Testaments.

**ENG 210 3 credits****Literature of the American West**

The course explores the myths and realities of the American West (west of the Mississippi) as they are reflected in literature—e.g. the cowboy, westward expansion, the Spanish conquistadors.

**ENG 211 3 credits****The American Dream**

A study of the meaning of success as reflected in works ranging from those of Benjamin Franklin and Horatio Alger to Arthur Miller.

**ENG 212 3 credits****American Literature and the Arts**

The course relates the literary and artistic expressions of American culture so that the literature is enhanced by an examination of the art and architecture. The course investigates, through literary works and discussions of representative artists and architects, the role of the arts and of the artist as creator, carrier, and critic of the American culture.

**ENG 213 3 credits****Economic Themes in American Literature**

The study of the way in which American writers have treated economic themes—materialism, the dreams of success, the haves and have-nots, trade unionism. Writers range from Franklin to Howells and Steinbeck.

**ENG 214 3 credits****Black American Literature**

The course explores the variety and range of black writing in America. Emphasis is placed on the work of W.E.B. Dubois, Langston Hughes, Richard Wright, Ralph Ellison, James Baldwin, and others.

**ENG 215 3 credits****West Indian and African Literature**

A study of important and innovative West Indian and contemporary African writers.

**ENG 216 3 credits****Comedy and Satire**

A study of the nature and purpose of comic and satirical writing—from Aristophanes to Swift and Sheridan

**ENG 217 3 credits****Greek Myth and Drama**

An exploration of the role of myth in the creation of the plots of Aeschylus, Sophocles, Euripides, and Aristophanes.

**ENG 218 3 credits****Revolution and Literature**

A study of writers whose work reflects the nature, methods, purpose, and consequences of dissent.

**ENG 219 3 credits****Classicism and Romanticism**

The course places in contrast the two major modes of thought in Western Civilization and attempts to show what part each has played in the development of Western man in the creation of major works of literature and the formation of individual personality. Analogous examples from music, painting, sculpture, and architecture will be considered.

**ENG 220 3 credits****British Literature and the Arts**

The course relates the literary and artistic expressions of British culture throwing new light on literature through an examination also of art and architecture.



**ENG 221 3 credits****Special Topics in Comparative Literature**

The course is constructed on a topic selected by the instructor.

**ENG 222 3 credits****Ibsen, Strindberg and Bergman****ENG 223 3 credits****Fantasy Literature****ENG 224 3 credits****Jewish Literature****ENG 245 3 credits****Images of Woman in Literature**

A study of archetypes and stereotypes of women in literature from the ancient world to the present in an attempt to reevaluate traditional literary criticism and the way authors have used images of women to create character, plot, etc.

**ENG 246 3 credits****Women Writers**

The study of literature by and about women, this course examines the relationship between the woman writer and her work, including such questions as "Is there a feminine style?" "Are there certain themes to which women are drawn?" "What has been the role of women writers in the development of various genres?"

**ENG 250 3 credits****Introduction to Poetry**

Examination of a poem's meaning and the devices used to develop that meaning such as symbolism, connotation, and figures of speech. Also consideration of metre and rhyme and of such distinctive forms as the sonnet, elegy, ode, and ballad.

**ENG 251 3 credits****Introduction to the Short Story**

A consideration of examples of short fiction selected to illustrate the history, development, and modus operandi of the genre.

**ENG 252 3 credits****Introduction to the Novel**

Using selected novels, the course aims to teach the student how to read a work of fiction, to become acquainted with the various types of novels, and to learn something about the history of the novel as a genre.

**ENG 253 3 credits****Introduction to Drama**

The aim of the course is to teach the student how to read a play and to become acquainted with the nature and methods of tragedy, comedy, melodrama, tragi-comedy.

**ENG 254 3 credits****The Art of Biography**

A study of the most significant biographical writing from antiquity to the present time. The student will be expected to learn discrimination among various methods by which a biographer recreates human life and character.

**ENG 255 3 credits****The Structure of Language**

Provides students with a basic working knowledge of phonology (systems of sounds), morphology (word structure) and syntax (sentence structure). Includes also an examination of various social and regional dialect patterns and requires of students the completion of a field project on some aspect of the speech of their town or their home.

**ENG 257 3 credits****Socio-Linguistics**

Previous linguistics training helpful but not necessary. An introduction to the study of language in its social context; reading and discussions of the ethnography of communications, speech and cultural values, speech and social institutions, bilingualism, code-switching.

**ENG 258 3 credits****History of the English Language**

A study of the development of English pronunciation, grammar, syntax, and vocabulary in the Old English, Middle English, and Modern English Periods.

**ENG 260 3 credits****Advanced composition**

Primarily for student who wish to gain more proficiency in the art of communication. Emphasis is placed on the development of skill in organizing materials, the forming of a lively and concrete style, and the growth of useful techniques in the arts of exposition, persuasion, and argumentation.

**ENG 261 3 credits****Techniques of Critical Writing**

**ENG 262 3 credits****Journalism I**

The course deals with the techniques of news and feature writing in conjunction with lectures on libel and slander, international news services and syndicates, importance of the columnist, the physical set-up of a newspaper plant, and other subjects pertinent to journalism as a profession.

Prerequisite: Permission of instructor.

**ENG 263 3 credits****Journalism II**

This course, sequential to techniques learned in Introduction to Journalism will stress advanced feature writing, analytical and "interpretive" journalism, editorial writing, copy-editing skills, and criticism of books, plays, and films.

**ENG 264 3 credits****Feature Story and Article Writing**

A workshop in writing of "human interest" articles for newspapers and magazines and in improving essay-writing skills. Guest lecturers from the professional field will be included.

Prerequisite: ENG 260 or ENG 262

**ENG 265 3 credits****Business Communications**

A course in communication skills concentrating on the application of these skills in business and industry. Emphasis is placed on the development of techniques in such areas as business report writing, professional presentations, job interviews, applications, resume writing, memos, letters, dictation, and the conduct of meetings.

**ENG 266 3 credits****Technical Communications**

An introduction to the many purposes, audiences, forms and format of technical documents and professional correspondence. Practice in writing and editing letters, memos, and reports to achieve worthwhile content, sensible organization, and readable style. Techniques of audience-and-use analysis to adjust a message's level of technicality to the needs and background of its audience. Focus throughout on writing as a deliberate process of deliberate decision.

**ENG 267 3 credits****Creative Writing - Poetry**

The study of contemporary techniques in the writing of poetry. Manuscripts will be read and discussed in class and individual conferences will be arranged. Limited to 20 students.

Prerequisite: Permission of instructor.



**ENG 268 3 credits****Creative Writing - Fiction**

The course concentrates on the techniques of writing fiction. Manuscripts are read and discussed in class. Individual conferences arranged. Limited to 20 students.

Prerequisite: Permission of instructor.

**ENG 269 3 credits****Creative Writing - Drama**

A study of the fundamental principles of dramaturgy. Manuscripts are read and discussed in class. Individual conferences are arranged. Limited to 20 students.

Prerequisite: Permission of instructor.

**ENG 270 3 credits****Speech**

An introduction to the art of public speaking through the study of effective principles combined with adequate practice in speaking before a group. Limited to 20 students.

Prerequisite: Permission of instructor.

**ENG 271 3 credits****Oral Interpretation of Literature**

Study of and practice in the oral interpretation of literary work with some consideration to the art of acting.

**ENG 272 3 credits****Oral Interpretation of Literature II**

A continuation of ENG 271.

Prerequisite: ENG 271.

**ENG 276 3 credits****Film as Drama**

An intensive study of outstanding films with much attention to the techniques of film criticism.

**ENG 277 3 credits****Special Topics in Film**

The course is constructed on a topic selected by the instructor.

**ENG 278 3 credits****Writing for the Media**

The course offers instruction in the various types of writing demanded by radio, TV and films along with some attention to production methods.

**ENG 280 3 credits****The 19th Century Continental Novel**

A study of 19th century fiction from Russia, France, Germany, including Tolstoy, Flaubert, Zola, and others.

**ENG 281 3 credits****The 20th Century Continental Novel**

Modern and contemporary fiction of France, Germany, Russia, Spain, Italy, including Mann, Gide, Camus, and others.

**ENG 282 3 credits****Modern British Literature**

The course concentrates on major British writers of the 20th century.

**ENG 283 3 credits****20th Century British Novel**

A study of 20th-century British novelists including such authors as Conrad, Woolf, Joyce, Lawrence, Forster, Huxley, Evelyn Waugh, Cary, and Greene.

**ENG 284 3 credits****20th Century American Novel**

A study of the 20th-century American novel from the naturalists to the present. Some of the authors considered are Norris, Dreiser, Anderson, Wolfe, Hemingway, Faulkner.

**ENG 285 3 credits****Contemporary British Fiction**

The course traces important trends in British fiction since World War II. Writers represented include Cary, Beckett, Golding, Orwell, Tolkien, Lessing, Fowles, and others.

**ENG 286 3 credits****Contemporary American Fiction**

A study of significant fiction produced in America since mid-century. Writers represented include Mailer, Bellow, Ellison, Heller, Barth, Pynchon, Vonnegut, and others.

**ENG 287 3 credits****Modern Drama**

A study of modern dramatists from Ibsen, Chekhov, and Strindberg through such playwrights as Shaw, Brecht, O'Neill, Galsworthy, Eliot, Williams, Miller, Giraudoux, Albee, Pinter, and Ionesco.

**ENG 288 3 credits****20th Century British Drama**

From the comedy of manners of Wilde and Shaw to the theater of the absurd of Beckett and Pinter.

**ENG 289 3 credits****American Drama**

A study of American drama from the beginning to the present.

**ENG 290 3 credits****Modern British Poetry**

A study of the chief trends and of the major poets and movements in modern British poetry.

**ENG 291 3 credits****20th Century American Poetry**

A study of major American poets of this century from Frost to Richard Wilbur.

**ENG 292 3 credits****Irish Literary Revival**

The course deals with the development of Irish literature from the end of the 19th century through the first decades of the 20th century. Writers included are Yeats, Joyce, Synge, O'Casey, and others. The cultural, historical, and political background of Anglo-Irish relations will also be examined.

**ENG 293 3 credits****Literature of the American South**

A study of such Southern writers, as Faulkner, Wolfe, Warren, McCullers, Ellison, Ransom, Tate, and Tennessee Williams with the following questions in mind: what was the mood of the South which produced the renaissance? In what manner are the works related to or dependent on the writers' southern background? What is the relationship of Southern to American literature?

**ENG 294 3 credits****The Decadence**

A study of the historical conditions and the literary and artistic theories of the late 19th century which culminated in the movement called The Decadence. Novels, plays, poems, and essays by such writers as Wilde, Morris, Swinburne, and Pater will be included.

**ENG 295 3 credits****The Experimental Novel****ENG 298 3 credits****Introduction to Chaucer**

A course designed primarily for non-English majors as an introduction to the greatest English poet of the medieval Period. Emphasis will be placed on *The Canterbury Tales*.



**ENG 229 3 credits****Introduction to Shakespeare**

A course designed primarily for non-English majors. It will examine some of the typical plays of the greatest dramatist in the English language.

**ENG 300 3 credits****Survey of British Literature I**

Required of English Majors. A careful study of British literature from *Beowulf* to Shakespeare.

**ENG 301 3 credits****Survey of British Literature II**

Required of English majors. A careful study of British writers from Donne to Samuel Johnson.

Prerequisite: ENG 300

**ENG 302 3 credits****Survey of British Literature III**

A careful study of British writers from Blake to Hardy. Required of English Majors.

Prerequisite: ENG 301.

**ENG 303 3 credits****Survey of American Literature I**

A survey of American writing from the Colonial Period to the Civil War. Emphasis is placed on the historical, cultural, and philosophical developments which created a native American literature. Required of English majors.

**ENG 304 3 credits****Survey of American Literature II**

Consideration of American writing from the Civil War to the present.

**ENG 305 3 credits****Old English Language and Literature**

Essentials of Old English grammar along with minor poetry and prose selections constitute a basis for a careful study of the Old English folk epic, *Beowulf*.

Prerequisite: ENG 300.

**ENG 306 3 credits****The Tudor Age**

A study of the development of non-dramatic literature of the Tudor Period stressing both the literary and historic value of the great works of the Elizabethans and the shaping of the English language as a tool which made those works possible.

Prerequisite: ENG 300.

**ENG 307 3 credits****English Literature of the 17th Century**

A survey of 17th-century non-dramatic literature from Donne to Dryden which will focus on three major themes: The evolution of modern English prose, the culmination of Elizabethan poetry in the metaphysicals, and the evolution of neo-classical poetic modes.

Prerequisite: ENG 301.

**ENG 308 3 credits****English Literature of the 18th Century**

A study of English literature of the 18th century with special emphasis on Dryden, Swift, Pope, Johnson and his circle.

Prerequisite: ENG 301.

**ENG 309 3 credits****The Romantic Age**

A survey of English literature from 1796-1832 stressing the major poets - Blake, Wordsworth, Byron, Shelley, Keats, with some study of novels and personal essays.

Prerequisite: ENG 302.

**ENG 310 3 credits****The Victorian Age**

A study of the major English writers of non-fiction from 1832-1900. Some prose non-fiction will be covered (Carlyle, Ruskin, Mill, etc.) but major emphasis is on such poets as Tennyson, Browning, Arnold, Rossetti, Swinburne, Meredith, Hopkins, and Housman.

Prerequisite: ENG 302.

**ENG 311 3 credits****The Victorian Novel**

A study of the Victorian Novel, both historically and generically, from Jane Austen to Thomas Hardy. Works by Austen, the Brontës, Dickens, Thackeray, George Eliot, Trollope, Meredith, and Hardy will be included.

Prerequisite: ENG 302.

**ENG 312 3 credits****British Drama to 1642**

A study of British drama from its beginnings in the Middle Ages through the closing of the theaters by the Puritans in 1642. Chief emphasis is on the drama of the Elizabethan and Jacobean Periods.

Prerequisite: ENG 300.

**ENG 313 3 credits****The English Novel to 1800**

A study of types of fiction popular in the 18th century and the reading of major works of the period. Some consideration of the novel as an art form and of its interaction with historical developments. Consideration of such writers as Defoe, Bunyan, Smollett, Sterne, Richardson, Fielding.

Prerequisite: ENG 301.

**ENG 314 3 credits****Colonial American Literature**

A study of 17th- and 18th-century American literature from Captain John Smith through Franklin. Emphasis on the historical background of the period and on the various types of literature produced in the period.

**ENG 315 3 credits****The American Renaissance**

A study of the five major figures of mid-19th-century American literature—Hawthorne, Melville, Emerson, Thoreau, and Whitman. Readings also in the intellectual and social movements of the period.

Prerequisite: ENG 303.

**ENG 316 3 credits****The 19th Century American Novel**

A study of American novelists from Cooper to Crane. Attention will focus on individual works as art and as examples of the development of the novel form in America in the 19th century.

Prerequisite: ENG 303.

**ENG 317 3 credits****19th Century American Poetry**

A careful study of the major American poets of the 19th century from Freneau to Whitman and Dickinson.

Prerequisite: ENG 303.

**ENG 318 3 credits****Chaucer**

A course designed primarily for English majors with an intensive and critical reading of *The Canterbury Tales*, with due attention to Chaucer's language and ethos. Further emphasis on Chaucer's humanity and the freshness of his thought for the 20th-century reader.

Prerequisite: EG 300.



**ENG 319 3 credits****Shakespeare**

A course designed for and required of English majors. A careful reading of Shakespeare's plays selected from the comedies, tragedies, and histories. Emphasis is on Shakespeare's development as a dramatist, the reasons for his reputation as the greatest poet in the language, and the manner in which his plays reflect Elizabethan custom, attitudes, and beliefs. Some outside reading is required in Shakespearean criticism and in the background of the period.

Prerequisite: ENG 300 or permission of instructor.

**ENG 320 3 credits****Milton**

A study of Milton's poetic achievement based on the reading of selected minor poems and their developmental relationship to *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*.

Prerequisite: ENG 301 or permission of instructor.

**ENG 321 3 credits****The Golden Ages of Drama**

The course deals with representative plays from the most famous and most productive eras in the history of world drama—Fifth Century B.C. Greece, the Middle Ages, the Renaissance, the age of Moliere, and the realistic and romantic drama of 19th century France and Germany.

Prerequisite: ENG 319 or permission of instructor.

**ENG 322 3 credits****History of Literary Criticism**

A study of important literary critics and critical theory from Aristotle to Arnold and T.S. Eliot.

Prerequisite: ENG 302.

**ENG 323 3 credits****Bibliography and Research Methods**

Materials and techniques of research in British and American literature; bibliography, form and content of papers and theses. Open only to junior and senior English majors. Limited to 10 students.

Prerequisite: ENG 302 or permission of instructor.

**ENG 347 3 credits****Special Topics in Women's Literature**

The course explores a topic selected by the instructor.

### Seminars

At least one seminar is required of each English major before he or she graduates. The particular topic of each seminar is announced immediately before each registration period. Seminars are open only to senior English majors and to junior English majors if space is available.

- ENG 400** Seminar in American Literature
- ENG 401** Seminar in 19th-Century American Literature
- ENG 402** Seminar in 20th-Century American Literature
- ENG 410** Seminar in British Literature before 17th Century
- ENG 411** Seminar in 17th Century British Literature
- ENG 412** Seminar in 18th Century British Literature
- ENG 413** Seminar in 19th Century British Literature
- ENG 414** Seminar in 20th Century British Literature
- ENG 415** Seminar in a British Author
- ENG 420** Seminar in Critical Methods
- ENG 421** Seminar in an American Literature Theme
- ENG 422** Seminar in a British Literature Theme
- ENG 423** Seminar in the History of Ideas
- ENG 424** Seminar in Genre Studies
- ENG 425** Seminar in Comparative Literature
- ENG 430** Seminar in the Theatrical Film

Please note that in lieu of the seminar requirement students who elect to concentrate in writing must select one of the following Writing Workshops:

- ENG 450** Advanced Poetry Workshop — with permission of instructor
- ENG 451** Advanced Fiction Workshop — with permission of instructor
- ENG 453** Advanced Writing Workshop — with permission of instructor
- ENG 454** Advanced Journalism Workshop — with permission of instructor

The following courses are arranged with permission of the instructor, the Department Chairperson, and the Dean of the College.

- ENG 490** Independent Study
- ENG 900** Contract Learning

## Faculty and Fields of Interest

**Joseph Bronstad** 20th-century German literature and culture

**Fatima Cordelro** Portuguese literature and languages

**Antone Felix** Portuguese culture and civilization

**Lewis Kamm** 19th- and 20th-century French literature

**Giullo Massano** Spanish and Italian literature of the Middle Ages, Renaissance and Baroque

**Marla Morelra** 20th-century Brazilian literature; Latin American culture

**Gregory Rocha** 19th- and 20th-century Portuguese literature

**Marla Rocha** 19th and 20th century Spanish and Latin American literature

**John H. Twomey** 20th century Spanish and Latin American literature

**Joseph Vincl** Spanish literature of the Middle Ages and Golden Age

**Ida H. Washington** 19th-century German literature

**Lawrence Washington** German literature since 1750; linguistics

**Walter J. Weeks, (chairperson)** 19th- and 20th-century Russian literature

**Melvin Yoken** 19th- and 20th-century French literature.

## Language Major

The Department offers basic courses in six languages: French, German, Italian, Portuguese, Russian and Spanish- in addition to courses in Latin, linguistics and language methodology. A student who has demonstrated aptitude and performance in languages may elect a major in French, German, Portuguese, and Spanish.



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## Requirements

A student who wishes to specialize in a modern language—French, German, Portuguese or Spanish—must complete a minimum of 30 credits in 300- and 400-level courses in the major field. Twenty-one of these credits must be taken in courses taught in the language. In French, Portuguese and Spanish courses 301 and 302 are required. The remaining hours will be chosen at the discretion of the student with the approval of the adviser. To qualify for any language course at the 300 level, a student must complete 202 or its equivalent. Students wishing to take 400-level courses must ordinarily fulfill the requirement for the 300-level courses, obtain the consent of the instructor teaching the 400-level course, and must have earned at least 12 credits in their major at SMU. A grade of 2.0 in the chosen language must be attained for graduation.

The Department recommends that all students specializing in modern languages, especially those planning to teach or pursue a higher degree, take at least 18 hours in a second foreign language.

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## Language Minor

The Department offers a minor in French, German, Portuguese and Spanish. A minor in a specific foreign language may be elected by a student majoring in any other field.

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## Requirements

Eighteen credits in one language are required, and must include:

- A. 301, 302 (or equivalent);
- B. 6 credits in 300-400 level courses beyond 301-302 (or equivalent).

Any degree candidate who has between 54 and 84 credits, with a cumulative grade point average of 2.0 and with a 2.5 grade point average in his or her major, may request admission to the minor in Foreign Literature and Languages.

In order to be designated as a student who has graduated with a minor in Foreign Literature and Languages, the student must maintain a grade point average of 2.0 in the minor.

Before being admitted to the Foreign Literature and Languages minor, students must obtain permission from the Department Chairperson.

The Department, in addition to the Language Majors and Minors mentioned above, will also sponsor Multidisciplinary Majors and Minors in Area Studies.

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## Practice Teaching

The Department of Foreign Literature and Languages permits only those students with a 3.0 cumulative in their major to engage in the University's Teaching Intern Program. (The Bureau of Teacher Preparation, Certification and Placement requires students seeking Middle and Secondary Certification to take LN 322 Introduction to Linguistics and ML 324 Concepts of Foreign Language Teaching in addition to the required courses offered by the Education Department.) Each semester, a list of qualified students will be submitted to the Department of Education.

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## Honors

Senior majors in the Foreign Literature and Languages Department who have an overall cum. or 3.5 can choose to do honors work. The student must take a three- or six- credit independent study on a specific topic. This course will have an extensive reading list and the student must present a long term paper which will be evaluated by a committee. The term paper must have at least a grade of A-.

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## French Courses

### **FR 101 3 credits**

#### **Elementary French I**

Essentials of aural-oral, reading and writing usage of the target language, with intensive drilling in pronunciation, intonation and grammar. Three recitations and one hour of laboratory per week.

### **FR 102 3 credits**

#### **Elementary French II**

Continuation of FR 101.

**FR 201 3 credits****Intermediate French I**

Review of grammar with composition and aural-oral practice. Introduction to French culture and civilization through intensive and extensive reading. Three recitations and one hour of laboratory per week. Prerequisite: FR 102 or equivalent.

**FR 202 3 credits****Intermediate French II**

Continuation of FR 201.

**FR 203 3 credits****French Literature in Translation I**

Outstanding works of French literature through the eighteenth century. Readings, lectures, and discussions in English. Prerequisite: ENG 102.

**FR 204 3 credits****French Literature in Translation II**

Outstanding works of French literature of the nineteenth and twentieth centuries. Readings, lectures, and discussions in English. Prerequisite: ENG 102.

**FR 301 3 credits****French Composition and Conversation I**

Oral and written reports. Practical application of grammar, vocabulary building and introduction to style. Prerequisite: FR 202 or equivalent.

**FR 302 3 credits French Composition and Conversation II**

Continuation of FR 301.

**FR 312 3 credits**

**Culture and Civilization of France** Introduction to the cultural development of the French people throughout history. Lectures, class discussions, written and oral reports on the significant aspects of French literary, social, and artistic life.

Prerequisite: FR 202 or equivalent.

**FR 323 3 credits****French Phonetics**

Transcription of prose and poetry in terms of the International Phonetic Alphabet. Phonetic and phonemic change, regionalisms, intonation stress and articulation.

Prerequisite: FR 202 or equivalent.



**FR 331 3 credits****Masterpieces of French Literature I**

The representative authors, poets and dramatists of French literature from *La Chanson de Roland* through the age of Enlightenment will be read and discussed.

Prerequisite: FR 302 or equivalent.

**FR 332 3 credits****Masterpieces of French Literature II**

The main literary movements from the nineteenth century to the contemporary period will be analyzed. Discussion of literary genres and important aspects of French literary history.

Prerequisite: FR 302 or equivalent.

**FR 443 3 credits****French Literature of the Renaissance**

Critical readings of Villon and of major authors of the sixteenth century, chiefly Marot, Rabelais, Ronsard, DeBelay and Montaigne.

Prerequisite: FR 302 or consent of instructor.

**FR 445 3 credits****French Literature of the Seventeenth Century**

Analysis and critical discussion of works from the French Classical period.

Prerequisite: FR 302 or consent of instructor.

**FR 452 3 credits****The Age of Enlightenment**

Growth of the philosophical movement and formation of the revolutionary spirit. Development of the novel, theatre, etc., in the works of LeSage, Montesquieu, Voltaire, Diderot, Rousseau, etc.

Prerequisite: FR 302 or consent of instructor.

**FR 455 3 credits****French Literature of the Romantic Period**

Selected readings in Chateaubriand, Lamartine, Vigny, Musset and Hugo.

Prerequisite: FR 302 or consent of instructor.

**FR 456 3 credits****French Literature of the Post-Romantic Period**

Study of the form and development of the novel, drama, theatre and poetry with readings in Stendhal, Balzac, Flaubert, Baudelaire, Rimbaud, Mallarme, Verlaine and Zola. Prerequisite: FR 302 or consent of instructor.

**FR 461 3 credits****Contemporary French Literature**

Main currents of literary thought as reflected in the drama, novel, and poetry of today: Claudel, Proust, Gide, Sartre, Camus, Duhamel, Romain, etc.

Prerequisite: FR 302 or consent of instructor.

**FR 481 3 credits****Seminar in French**

An intensive study of a specific topic, such as aural French comprehension, or a particular author or a literary movement. The topic will vary from year to year so that the course may be repeated for credit.

Prerequisite: FR 302 or consent of instructor.

**FR 482 3 credits****Seminar in French**

Similar to FR 481 but with a different topic, including History of the French Language.

Prerequisite: FR 302 or consent of instructor.

**Independent Study**

Intensive study or research on a special topic under the direction of a staff member. Hours to be arranged.

Prerequisite: FR Senior standing.

**FR 496****Directed Studies**

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**German Courses****GE 101 3 credits****Elementary German**

Introductory study of the language and its grammatical structure. Development of the skills of understanding, speaking, reading and writing. Three hours of recitation and one hour of laboratory per week.

**GE 102 3 credits****Elementary German**

Continuation of GE 101.

**GE 103 3 credits Conversational German I** This course is parallel to GE 101, but the emphasis is on learning to understand and speak in everyday situations, particularly in connection with travel and life in Germany today. No previous knowledge of German required.

**GE 104 3 credits****Conversational German II**

Continuation of GE 103 (parallel to GE 102).

**GE 201 3 credits****Intermediate German**

Review of grammar. Development of facility in composition and conversation. Intensive and extensive reading in texts of cultural and literary value. Three hours of recitation and one hour of laboratory per week.

Prerequisite: GE 102 or equivalent.

**GE 202 3 credits****Intermediate German** Continuation of GE 201.**GE 203 3 credits****German Literature in Translation**

A survey of German literature from its beginnings through the works of Goethe and Schiller. Lectures, discussion, and reading in English.

Prerequisite: ENG 102.

**GE 204 3 credits****German Literature in Translation**

A survey of nineteenth and twentieth century German literature. Lectures, discussions, and reading in English.

Prerequisite: ENG 102.

**GE 301 3 credits****German Composition and Conversation**

Extensive oral and written application of German on the advanced level.

The course will be conducted in German with emphasis on idiomatic use of the language and finer points of grammar to give the student greater confidence and accuracy in expression.

Prerequisite: GE 202 or equivalent.

**GE 311 3 credits****German Culture and Civilization**

Through reports, readings, and discussions in German, the student will learn about life in Germany, Austria, and Switzerland, both on the contemporary scene and from a historical perspective.

Prerequisite: GE 202 or equivalent.

**GE 326 3 credits****History of the German Language**

The historical development of German from its Indo-European origins to the present, its vocabulary, forms, and syntax particularly in their relationship to English. No previous knowledge of German required.



**GE 335 3 credits****German Poetry**

A survey of German poetry from the ninth to the twentieth century, with analysis of changing form and content.

Prerequisite: GE 202 or consent of instructor.

**GE 357 3 credits****German Novelle**

The short prose form in its development during the nineteenth and twentieth centuries through a reading of representative authors.

Prerequisite: GE 202 or consent of instructor.

**GE 366 3 credits****Contemporary German Literature**

Recent developments in German literature in the Federal Republic of Germany and the German Democratic Republic, as well as in Austria and Switzerland. Material will be presented through reports, readings, and discussions in German.

Prerequisite: GE 202 or equivalent.

**GE 374 3 credits****German Drama**

German drama from its beginnings to the present day through a reading of representative plays.

Prerequisite: GE 202 or consent of instructor.

**GE 481 3 credits****Seminar in German**

An intensive study of a specific topic, such as a particular author or literary movement. The topic will vary from year to year so that the course may be repeated with credit. Prerequisite: A 300-level course in German or consent of instructor.

**GE 482 3 credits****Seminar in German**

Similar to GE 481 but with a different topic. Prerequisite: A 300-level course in German or consent of instructor.

**GE 495 2-4 credits****Independent Study**

Individual study or research on a special topic under the direction of a staff member. Offered only on demand.

Prerequisite: Senior standing.

**GE 496 Directed Studies**

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## Italian Courses

**LG 101 3 credits****Elementary Italian I**

Essentials of aural-oral, reading and writing usage of the target language with intensive drilling in pronunciation, intonation and grammar. Three recitations and one hour of laboratory per week.

**LG 102 3 credits****Elementary Italian II**

Continuation of LG 101

**LG 201 3 credits****Intermediate Italian I**

Review of grammar with composition and aural-oral practice. Extensive readings of cultural and literary value. Emphasis on practical application of grammar in conversations. Three recitations a week.  
Prerequisite: LG 102 or equivalent.

**LG 202 3 credits****Intermediate Italian II**

Continuation of LG 201

**LG 211 3 credits****Textual Analysis**

Literary explication. Intensive readings with analysis of relationships between language and thought and form and content. Training in the writing of analytical critique. Course taught in English. Applied to all Foreign Literature and Languages majors.

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## Linguistic Courses

**LN 322 3 credits****Introduction to Linguistics**

The nature, development and structure of human speech. Topics studied include the significant sounds of speech, phonetics and phonemics, building blocks of speech, morphemics, syntactic structures.

**LN 326 3 credits****Comparative Romance Linguistics**

This course traces the development of the Romance languages from Classical and Vulgar Latin to their present forms with attention to phonology, morphology and the lexicon. Recommended for majors in French, Portuguese, and Spanish. A previous knowledge of Latin is desirable but not required.

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**Latin Courses****LT 101 3 credits****Introductory Latin I**

The fundamentals of the Latin language with selected readings, designed especially for those majoring in English or foreign languages. The course will seek to develop a measure of oral ability in the language, as well as knowledge of the phonemics, morphology, and syntax of the declensional and conjugational systems.

**LT 102 3 credits****Introductory Latin II**

Continuation of LT 101

**LT 201 3 credits****Intermediate Latin I**

A third semester of Latin, designed to develop skill in the reading of representative authors of the Golden Age (Catullus, Cicero, Nepos, Horace, Martial and others), with additional selections from the Patristic Period (Vulgate), and from the Medieval Period (Isidore of Seville, and the Venerable Bede). Prerequisite: LT 102

**LT 202 3 credits****Intermediate Latin II**

A fourth semester course paralleling LT 201 but with more extensive selections, from Nepos, Horace and Phaedrus (Augustan Period); from the *Epistolae* of Pliny the Younger, mirroring Roman life, and from the *Saturae* of Martial; supplemented by other materials where feasible. While one purpose of LT 201-202 will remain the building of ability to translate, the endeavor will be made to foster reading of the Latin texts directly in the original for personal enrichment and satisfaction.

Prerequisite: LT 201



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## Teaching Methods Courses

### **ML 324 3 credits**

#### **Concepts of Foreign Language Teaching**

An analysis of methods and techniques on the teaching and learning of foreign languages. Examination of innovations in foreign language education. A study of the problems of language, subject matter, and materials inherent in bi-lingual education. Individual and group projects with application of theory to practice.

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## Portuguese Courses

### **PO 100 3 credits**

#### **Accelerated Elementary Portuguese**

Five classes per week 2 language labs. A one-semester intensified and concentrated study of PO 101-102 for greater coverage and depth. Recommended for language majors and students interested in acquiring the skills of the language.

### **PO 101 3 credits**

#### **Elementary Portuguese I**

Essentials of aural-oral, reading and writing usage of the target language with intensive drilling in pronunciation, intonation and grammar. Three recitations and one hour of laboratory per week.

### **PO 102 3 credits**

#### **Elementary Portuguese II**

Continuation of PO 101.

### **PO 105 3 credits**

#### **Conversational Portuguese I**

An introductory course in the development of fluency in colloquial situations, particularly those relating to business, professional work, or education. Some attention to grammar. Relevant readings of cultural value.

### **PO 106 3 credits**

#### **Conversational Portuguese II**

Continuation of PO 105.

### **PO 200 3 credits**

#### **Accelerated Intermediate Portuguese**

Five classes per week-2 language labs. A one-semester intensified and concentrated study of PO 201-202 for greater coverage and depth.

Recommended for language majors and students interested in developing the skills of the language.

Prerequisite: PO 100 or PO 101-102.

**PO 201 3 credits**

**Intermediate Portuguese I**

Review of grammar with composition and aural-oral practice. Introduction to Portuguese and Brazilian culture and civilization through intensive and extensive reading. Three recitations and one hour of laboratory per week. Prerequisite: PO 102 or equivalent.

**PO 202 3 credits**

**Intermediate Portuguese II**

Continuation of PO 201.

**PO 203 3 credits**

**Portuguese Literature in Translation II**

Outstanding works of Brazilian literature of the nineteenth and twentieth centuries. Readings, lectures, and discussions in English.

Prerequisite: ENG 102.

**PO 205 3 credits**

**Intermediate Conversational Portuguese I**

Further development of fluency to deal with native speakers on everyday terms. More involved grammar. Relevant readings of cultural value. Prerequisite: A course in elementary Portuguese or consent of instructor.

**PO 206 3 credits**

**Intermediate Conversational Portuguese II**

Continuation of PO 205.

**PO 301 3 credits**

**Portuguese Composition and Conversation I**

Oral and written reports on everyday events. Emphasis placed on correct syntax and style.

Prerequisite: PO 202 or equivalent.

**PO 302 3 credits**

**Portuguese Composition and Conversation II**

Continuation of PO 301.

**PO 312 3 credits**

**Culture and Civilization of Portugal**

Introduction to the cultural development of the Portuguese people throughout history. Lectures, class discussions, written and oral reports on significant aspects of Portuguese literary, social and artistic life.

Prerequisite: PO 301 or equivalent.

**PO 314 3 credits****Culture and Civilization of Brazil**

The development of Brazil and its people from the colonial period to the present. Lectures, class discussions, written and oral reports on the significant aspects of Brazilian literary, social and artistic life.

Prerequisite: PO 301 or equivalent.

**PO 325 3 credits****Advanced Portuguese Grammar and Syntax**

A study of Portuguese grammar and its usage with extensive drills.

Prerequisite: PO 202 or equivalent.

**PO 331 3 credits****Masterpieces of Portuguese Literature I**

Representative works of outstanding Portuguese authors, poets and dramatists from the Middle Ages to the classical period.

Prerequisite: PO 302 or equivalent.

**PO 332 3 credits****Masterpieces of Portuguese Literature II**

Selected works starting with the "Arcadia" movement and continuing to the contemporary period.

Prerequisite: PO 331 or equivalent.

**PO 333 3 credits****Masterpieces of Brazilian Literature I**

The major literary works from the colonial period to Romanticism.

Prerequisite: PO 302 or equivalent.

**PO 334 3 credits****Masterpieces of Brazilian Literature II**

The outstanding literary works from Realism to Modernism.

Prerequisite: PO 302 or equivalent.

**PO 337 3 credits****Business Communication: English-Portuguese I**

The main objective of this course is to help Portuguese speaking students to become familiarized with the vocabulary used in business correspondence and translation. This objective will be reached by teaching the fundamentals of business correspondence in Portuguese and the translation of business related subjects from English to Portuguese and vice-versa. Readings on the economy and finances of Brazil and Portugal will also be emphasized.



**PO 338 3 credits****Business Communication: English-Portuguese II**

Continuation of PO 337.

**PO 445 3 credits****The Classical Period**

The literary works of the great national period of Portugal. Emphasis on the classical theatre and the Lusiads. Prerequisite: PO 331-332 or consent of instructor.

**PO 446 3 credits****The Classical Period Prose and Poetry**

The literary works of the great national period of Portugal. Emphasis on poetry, the literature of discovery, and prose.

Prerequisite: PO 331-332 or consent of instructor.

**PO 455 3 credits****Literature of the 19th- and 20th-Century I**

A study of Romanticism and Realism. The "Generation of Coimbra" is discussed, but Eca de Queiroz will be studied in PO 456.

Prerequisite: PO 331-332 or consent of instructor.

**PO 456 3 credits****Literature of the 19th- and 20th-Century II**

A study of Realism with special emphasis on Eca de Queiroz and the contemporary movements.

Prerequisite: PO 331-332 or consent of instructor.

**PO 481 3 credits****Seminar in Portuguese**

An intensive study of a specific topic, such as a particular author or literary movement. The topic will vary from year to year so that the course may be repeated with credit.

Prerequisite: PO 331-332 or 333-334 and consent of instructor.

**PO 482 3 credits****Seminar in Portuguese**

Similar to PO 481 but with a different topic. (A spring semester offering while PO 481 is for fall.)

Prerequisite: PO 331-332 or 333-334 and consent of instructor.

**PO 495 2-4 credits****Independent Study**

Intensive study or research on a specific topic in Portuguese or Brazilian studies, under the direction of a staff member. Prerequisite: Senior standing.

**PO 496 Directed Studies**

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**Russian Courses****RU 101 3 credits****Elementary Russian I**

A study of the fundamentals of Russian grammar together with drills in pronunciation and reading. Conversation in Russian is introduced from the beginning. Various outside readings in Russian will introduce the student to Russian and Soviet culture. Three recitations and one hour of laboratory per week.

**RU 102 3 credits****Elementary Russian II**

Continuation of RU 101.

**RU 201 3 credits****Intermediate Russian I**

This course will include a review of basic grammar and a study of more advanced syntax. Readings will serve as the basis for continued work in conversation and composition and for the study of Russian and Soviet culture. Three recitations and one hour of laboratory per week. Prerequisite: RU 102 or equivalent.

**RU 202 3 credits****Intermediate Russian II**

Continuation of RU 201.

**RU 203 3 credits****Masterpieces of Russian Literature in Translation I**

A survey of Russian literature from its beginning to 1870. Representative works of major authors will be read and discussed. Conducted in English. Three recitations per week. Prerequisite: ENG 102.

**RU 204 3 credits****Masterpieces of Russian Literature in Translation II**

A survey of Russian literature from 1870 to the present. Representative works of major authors will be read and discussed. Conducted in English. Three recitations per week.

Prerequisite: ENG 102.

**RU 205 3 credits****Russian for Biology Students I**

Introductory readings in biological Russian from Soviet texts and edited published articles. Particular attention will be paid to scientific vocabulary.

Prerequisite: RU 102.

**RU 206 3 credits****Russian for Biology Students II**

Reading and translation of current articles from Soviet Periodicals in Botany, Ecology, Morphology, Physiology, Zoology, and other areas.

Prerequisite: RU 201 or RU 205.

**RU 301 3 credits****Russian Conversation and Composition**

Oral and written reports. Practical application of grammar, vocabulary building and introduction to style. Three recitations per week.

Prerequisite: RU 202 or equivalent.

**RU 302 3 credits****Russian Conversation and Composition**

Continuation of RU 301.

**RU 303 3 credits****Russian Expository Prose I**

Readings in the humanities and social sciences from Soviet newspapers and journals. Special attention will be paid to journalistic syntax and acquisition of a core vocabulary.

Prerequisite: RU 202.

**RU 304 3 credits****Russian Expository Prose II**

Continuation of RU 303.



**RU 495 Independent Study**

Intensive study or research on a special topic under the direction of a staff member. Hours to be arranged.

Prerequisite: Senior standing.

**RU 496****Directed Studies**

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**Spanish Courses****SP 100 6 credits****Accelerated Elementary Spanish**

A one semester intensified and concentrated study of Elementary Spanish for greater coverage and depth. Recommended for language majors, minors, and students with established language skills. Five classes per week and 2 hours of language laboratory.

**SP 101 3 credits****Elementary Spanish I**

Essentials of aural-oral, reading and writing usage of the target language with intensive drilling on pronunciation, intonation and grammar. Three recitations and one hour of laboratory per week.

**SP 102 3 credits****Elementary Spanish II**

Continuation of SP 101.

**SP 200 6 credits****Accelerated Intermediate Spanish**

A one semester intensified and concentrated study of Intermediate Spanish for greater coverage and depth. Recommended for language major, minors, and students with established language skills. Five classes per week and 2 hours of language laboratory.

Prerequisite: SP 100 or SP 102.

**SP 201 3 credits****Intermediate Spanish I**

Review of grammar with composition and aural-oral practice. Introduction to Hispanic Culture and civilization through intensive and extensive reading. Three recitations and one hour of laboratory per week.

Prerequisite: SP 102 or equivalent.

**SP 202 3 credits**

**Intermediate Spanish II**

Continuation of SP 201.

**SP 203 3 credits**

**Spanish Literature in Translation I**

Outstanding works of Spanish literature through the eighteenth century. Readings, lectures, and discussions in English.

Prerequisite: ENG 102.

**SP 204 3 credits**

**Spanish Literature in Translation II**

Outstanding works of Spanish and/or Spanish-American literature of the nineteenth and twentieth centuries. Readings, lectures, and discussions in English.

Prerequisite: SP 202 or equivalent.

**SP 302 3 credits**

**Conversation and Composition II**

Continuation of SP 301. Abundant discussions and oral reports based on modern literary works, expository or journalistic prose from Spain and Latin America. Vocabulary building and frequent compositions.

Prerequisite: SP 301 or equivalent or permission of the instructor.

**SP 304 3 credits**

**Advanced Composition and Conversation**

Abundant discussion and oral reports on current themes in the Hispanic world. Frequent compositions on topics found in Spanish, and Spanish-American periodicals and newspapers.

Prerequisite: SP 302 or consent of instructor.

**SP 305 3 credits**

**Business Spanish**

Spanish for correspondence, investments, law, transportation, banking, administration, personnel, publicity and promotion. Abundant practice in translation and vocabulary. Readings and selections from different fields for comprehension. 3 classes per week.

Prerequisite: SP 202

**SP 314 3 credits**

**Culture and Civilization of Latin America**

Lectures, class discussions, written and oral reports on the significant aspects of Latin American literary, social and artistic development from the period of discovery and colonization to present times.

Prerequisite: SP 301 or consent of instructor.

**SP 325 3 credits****Advanced Spanish Grammar and Syntax**

A systematic study of Spanish grammar with extensive practice in composition. Recommended for those planning to teach.

Prerequisite: SP 202.

**SP 331 3 credits****Masterpieces of Spanish Literature I**

The representative authors, poets and dramatists of Spanish literature from El Cantar de Mio Cid in the Middle Ages to Quevedo in the Baroque period.

Prerequisite: SP 302 or consent of instructor.

**SP 332 3 credits****Masterpieces of Spanish Literature II**

Selected plays, novels and poetry from the eighteenth century to the contemporary period.

Prerequisite: SP 302 or consent of instructor.

**SP 333 3 credits****Representative Authors of Spanish American Literature I**

The main writers from the period of conquest and discovery in the New World to the development of Gaucho literature in the nineteenth century.

Prerequisite: SP 302 or consent of instructor.

**SP 334 3 credits****Representative Authors of Spanish American Literature II**

The major works from the pre-Modernist period in the nineteenth century to the contemporary period. Prerequisite: SP 302 or consent of instructor.

**SP 445 3 credits Spanish Poetry and Drama of the Golden Age**

The poetry of the Renaissance and Baroque periods together with the selected plays of Lope de Vega, Calderon de la Barca and Tirso de Molina.

Prerequisite: SP 331-332 or consent of instructor.

**SP 446 3 credits****Spanish Prose of the Golden Age**

The main authors of the sixteenth and seventeenth centuries with emphasis on the life and major works of Miguel de Cervantes.

Prerequisite: SP 331 or consent of instructor.

**SP 455 3 credits****Literature of the Nineteenth Century**

The main literary movements, romanticism, realism and naturalism are studied together with the representative works of outstanding authors, poets, and dramatists.

Prerequisite: SP 331-332 or consent of instructor.



**SP 456 3 credits****Contemporary Spanish Literature**

The leading writers of each literary form from the generation of '98 to the post-Spanish-Civil-War period.

Prerequisite: SP 331-332 or consent of instructor.

**SP 481 3 credits****Seminar in Spanish**

An intensive study of a specific topic or topics, such as a particular author, genre, or literary movement. The topic or topics will vary from year to year so that the course may be repeated with credit.

Prerequisite: SP 331, 332 or SP 333, 334 or consent of instructor.

**SP 482 3 credits****Seminar in Spanish**

Similar to SP 481 but with a different topic (a spring semester offering while SP 481 is for fall).

Prerequisite: SP 331, 332 or SP 333, 334 or consent of instructor.

**SP 495 2-4 credits****Independent Study**

Intensive study or research on a special topic in Spanish or Spanish American literature under the direction of a faculty member. Hours to be arranged.

Prerequisite: Senior standing.

**SP 496****Directed Studies**

Academic coordination for these courses is handled by the SMU Gerontology Committee co-chaired by Prof. Ann Tschirch (Nursing) and Prof. Robert Piper (Political Science). Inquiries about these courses should be directed to the Division of Continuing Studies, where they are usually offered.

**SS 105 3 credits**

**Death and Dying**

These topics are explored: changing meanings of death and dying, death in popular culture, demography of death, life after death, old and new meanings of death, survivors, grief, widowhood, funerals, moral dilemmas of death.

**SS 112 3 credits**

**Elder Affairs in American Society**

The culture and society will be examined to determine the historical forces and cultural values that shape a society's thinking about aging and the elderly. The political processes which influence the conditions of the elderly and which also create the political arena in which the elderly may exert their power will be studied, including how the elderly may organize to obtain resources and services.

**SS 115 3 credits**

**Applied Psychology for Elders**

An exploration of the coping strategies of older people which may be both functional and dysfunctional to their adjustment to the aging process (as viewed from a psychological perspective).

**SS 123 3 credits**

**Communication: A Life-Long Process**

The focus in this course is on various factors that contribute to effective communication, the process of forming relationships, and the ability to confront important issues.

**SS 135 3 credits****Community Training for Programs and Services for Elders**

This course acquaints students with the aging network and teaches them to develop fundamental helping skills in working with the older population.

The following gerontology courses are offered by the Departments of Biology and Community Nursing and are described elsewhere:

**BO 216** Biology of Aging.

**NU 151** Understanding and Care of Elderly

**NU 160** Meaningful Motivation of Elders

**NU 203** Introduction to Gerontology



## Faculty and Fields of Interest

**Martin J. Butler** American economic, maritime, local, oral history

**Ann T. Carey (chairperson)** Germany, modern Europe

**Frederick V. Gifun** Latin America, Iberia

**Kevin J. Hargreaves** France, European intellectual history

**James Hijiya** American history

**Albert S. Hill** modern France, modern Europe

**Tao-Chen Hsia** China, Japan, Asia

**Gerard M. Koot** modern Britain, modern Europe

**Robert Michael** modern France, modern Europe

**Betty Mitchell** nineteenth century United States, Women's history

**Geraldine M. Phipps** Russia, Eastern Europe

**Lester H. Rifkin** U.S. social and intellectual history

**M. C. Rosenfield** Britain, medieval Europe

**Joseph N. Scionti** Renaissance and Reformation, Italy

**John M. Werly** twentieth century United States, urban America

## History Major

All history majors will be required to take 36 credits in history as indicated in Requirements below. Freshmen will normally not take courses above the 100 or 200 level. It is expected that each history major will consult regularly with his class advisor in formulating a program of study that will help to fulfill his educational and career goals.

## History Honors Program

The History Department offers an Honors Program for senior majors with a 3.3 cumulative average. In this program students write a research paper with a faculty member of their choice. For details on this program, students should consult their advisor.

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## History Minor

The History Department offers a Minor in History with the following requirements: 1. 18 credits in History as follows: a) At least 9 credits of 300-400 level courses b) At least 3 credits in Historiography or a seminar c) No more than 6 credits at the 100 level. 2. Any degree candidate who has at least 54 credits with a cumulative grade point average of 2.0 and at least 2.5 grade point average in his/her major may request admission to the minor in History. This request must be approved by the Department Chairperson. Upon admission students will be assigned an advisor. 3. A student who maintains a 2.0 average in his/her history courses (for the minor) will have the successful completion of a minor in History noted on his/her transcript and diploma.

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## Requirements

At least 6 hours of 100-level courses and 30 hours of history courses past the 100 level to be divided in the following manner:

	Semester Credits
United States History	6
European history	6
Other fields, to include Russia, Latin America, Asia, Near East, Africa (may be taken at the 100 level)	6
Either Historiography (HY 250) or a Seminar (400 level)	3
Electives	9

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## History Courses

### **HY 101 3 credits**

#### **History of Western Civilization I**

A survey of the growth of European civilization from ancient times to the end of the Middle Ages, including economic, social, political and intellectual developments.

### **HY 102 3 credits**

#### **History of Western Civilization II**

A continuation of the study of European civilization from the end of the Middle Ages to the present, with emphasis on the origins and development of 20th century problems.

### **HY 111 3 credits**

#### **Introduction to History I**

An introductory course dealing with selected topics in European and world history prior to the 20th century. Course content will vary with instructor.

### **HY 112 3 credits**

#### **Introduction to History II**

An introductory course dealing with selected topics in European and world history in the modern period. Course content will vary with instructor.

### **HY 113 3 credits**

#### **Introduction to History I-a**

An introductory course dealing with selected topics in American history prior to the 20th century. Course content will vary with instructor.

### **HY 114 3 credits**

#### **Introduction to History II-a**

An introductory course dealing with selected topics in American history during the 20th century. Course content will vary with instructor.

### **HY 115 3 credits**

#### **History of the United States I**

A survey of political, social, economic and diplomatic developments from colonial times to the Civil War. Continuity and change in domestic and foreign policies, and the role of individuals, movements and institutions will be emphasized.

### **HY 116 3 credits**

#### **History of the United States II**

A continuation of the survey of American history, from the Civil War and Reconstruction to the present.



**HY 160 3 credits****Latin American Civilization I**

An introduction to the history, culture, and institutions of the regions of the Western Hemisphere colonized by Portugal and Spain. Considers the native American, European, and African elements of Latin American Civilization from the pre-Columbian era to the wars for independence in the 1820's.

**HY 171 3 credits****Latin American Civilization II**

A survey of the independent nations of Latin America from the 1820's to the present. Emphasis on the process of legitimizing political authority, race and class, ideological influences, foreign economic penetration, revolution and the status quo, and development.

**HY 180 3 credits****Asian Civilization**

A survey of Asian culture, its origins in Chinese and Indian Civilizations, and its subsequent development. Emphasis on the historical, social and economic development of such newly independent Asian countries as Indonesia, Malaya, Singapore.

**HY 203 3 credits****20th Century America I**

An interpretive analysis of the major American domestic and foreign policy trends from 1900 to 1945: Progressive Era, World War I, Red Scare, Roaring Twenties, Depression, New Deal, World War II.

**HY 204 3 credits****20th Century America II**

An interpretive analysis of the major American domestic and foreign policy trends from 1945 to the present: the Cold War, Fair Deal, McCarthyism, Eisenhower Years, New Frontier, Great Society, Vietnam, Counterculture, Nixon Years.

**HY 205-206 3 credits****Afro-American History I and II**

A survey of the role of Blacks in American history from the colonial period to the present. Emphasis on the role of Blacks in American life and culture.

**HY 207 3 credits****Women's History in the United States: Colonial to the Present**

Survey of the history of women — black and white, native and immigrant, rich and poor — in the U.S. from colonial times to the present. Among the topics to be discussed are: women's role in agrarian vs.

industrial society; women and the family; women in the labor movement; female friendships and organizations; the frontier experience; women's suffrage; sex and sex roles; and the birth and growth of the feminist movement.

**HY 208 3 credits**

**Massachusetts History**

A survey of the historical development of the state, within the context of New England and national historical trends. A wide variety of topics are treated in order to provide a broad appreciation of the factors which have contributed to the evolution of the modern state of Massachusetts and its people.

**HY 221 3 credits**

**History of Greek Civilization**

An introduction to the history of Greek Civilization, from Minoan and Mycenaean times to the Hellenistic period. Emphasis will be on cultural and intellectual developments in the social and political contexts.

**HY 222 3 credits**

**History of Roman Civilization**

A survey of Roman civilization from the origins of Rome to the age of Constantine.

**HY 223 3 credits**

**Medieval History**

A one-semester course on the transition of Europe during the period from the end of the Classical World to the Renaissance. Emphasis on political development, social and economic change and the role of the Church.

**HY 228 3 credits**

**History of Europe, 1815-1914**

The major political, economic, intellectual and social developments in Europe from the defeat of Napoleon to the outbreak of World War I.

**HY 229 3 credits**

**Europe in the 20th Century, to 1939**

A study of the forces shaping contemporary Europe. Attention will be paid to World War I and its impact, the Versailles settlement, liberalism and democracy in the 20th century, the challenge of totalitarian systems, and the coming of the Second World War.

**HY 230 3 credits****Europe in the 20th Century, Since 1939**

A continuation of HY 229, with emphasis on World War II and its aftermath, the Cold War, Europe's loss of world domination, the movement toward the unity of Europe, and new intellectual and artistic trends.

**HY 250 3 credits****Historiography**

A one-semester course devoted to the study of history as a means to understanding human experience and development. Acquaints the student with source materials, research methods and problems of interpretation.

**HY 282 3 credits****China and the Far East**

A one-semester course introducing the history and geography of China, Japan and Korea. Emphasis on events since the establishment of relations with the West. The interrelations of the three principal Far Eastern states in modern times will be studied.

**HY 283 3 credits****Chinese Civilization and Culture**

This course covers general Chinese history and civilization from ancient times to the present. Emphasis on China's cultural contributions at times of both unity and disunity, and upon the characteristics of cultural change and continuity.

**HY 284 3 credits****Japanese Civilization and Culture**

A study of Japanese cultural and political development from ancient to modern times with emphasis on literature, religion and art.

**HY 300 3 credits****Topics in American History**

A critical analysis of selected topics or issues in American history which are not otherwise offered in the standard catalogue courses.

**HY 301 3 credits****American Colonial History**

The British North American colonies from their origins to the eve of the Revolution.



**HY 302 3 credits****History of Religion in America I**

A survey of the American religious experience from the seventeenth century to the Civil War, focusing on the redefinition of European religious turmoil in the colonies, Native American religion, the Great Awakening, eighteenth century Civil millennialism, early growth of Catholicism and Judaism, the communitarian impulse, the explosion of evangelicalism, the impact on humanitarian reform and the shaping of the Afro-American religious alternatives.

**HY 303 3 credits****History of Religion in America II**

A survey of the American religious experience from the Civil War to the present, focusing on the rise of black churches, the impact of immigration and urban industrialism, the Ghost Dance religions, the Social Gospel, the Americanization of the Catholic Church, the Fundamentalist controversy, the impact of the Depression, Neo-Orthodoxy, the public religion of the Cold War, Pan-Indianism, twentieth century Judaism, the flowering of the cults and the emergence of the Moral Majority.

**HY 305 3 credits****The United States from the Revolution to the Age of Jackson**

A study of the period from 1760's to the 1840's, concentrating on the development of political ideas and practices. Topics will include the enlightenment in America, the Revolution and its origins, the Constitution, the development of political parties, the Jeffersonian revolution, territorial expansion, and Jacksonian democracy.

**HY 306 3 credits****Civil War and Reconstruction**

The "peculiar institution", the debate over slavery, the Civil War, and Reconstruction.

**HY 307, 308 3 credits****American Social and Intellectual History I and II**

A study of the major currents of thought — religious, social and political — which have had an impact upon the development of American institutions and values.

**HY 309 3 credits****American Entrepreneurial History**

This course traces the development of American business and industry from the age of the colonial merchants, through the emergence of large scale industry in the nineteenth century into the modern era. It is primarily a business history course, focusing upon various industries and their development.

**HY 311 3 credits****New England Maritime History**

This course focuses its attention upon the relationship between this region and the sea. It is more local in its approach than the American Maritime History course, and treats coastal and foreign trade of individual ports, whaling, fishing and recreational industries. The decline of maritime New England is also treated, bringing the course into the most recent decades.

**HY 312 3 credits****American Maritime History**

A one-semester course examining the development of the American merchant shipping industry since colonial times, and its role in American political, economic and cultural history.

**HY 313 3 credits****Territorial Expansion of the United States**

A comprehensive study of the economic, political and social factors involved in the Westward movement of the American people.

**HY 314 3 credits****History of Urban America**

A survey of the emergence and development of the American city from 1607 to the present, focusing on the colonial city, immigration, nativism, industrialism, the political machine, the reformer, the emergence of the metropolis, and the ghetto.

**HY 315 3 credits****History of American Foreign Policy I**

Major topics on which contemporary statesmen and later scholars have differed widely will be examined: the foreign policy of the Founding Fathers; Washington's "Farewell Address"; the Louisiana Purchase; the War of 1812; the Monroe Doctrine; Manifest Destiny and the War with Mexico; late nineteenth century expansionism and economics; and the War with Spain and the Empire.

**HY 316 3 credits****History of American Foreign Policy II**

Topics to be covered include The Open Door Policy, Dollar Diplomacy, Missionary diplomacy, Asian policies, The origins of the Cold War, the Vietnam years and the diffusion of world power.

**HY 317 3 credits****History of European Women**

This survey of Women's history from the Renaissance to the present will critically examine the recent scholarship on this topic. The course will deal both with remarkable and ordinary women. Extensive use will be made of recent research on the history of the family and social demography as well as the more traditional areas of political, intellectual, and economic history. While emphasizing Western Europe, the course will include some material from the Americas and other areas.

**HY 318 3 credits****Women's Biography and Autobiography**

This course will examine the lives of various women in the United States, Great Britain, and elsewhere both from a literary and historical perspective. Examples of women whose lives will be studied are Charlotte Bronte, Sarah and Angelina Grimke, Charlotte Perkins Gilman.

**HY 319 3 credits****Early Modern Europe, 1600-1815**

A survey of post-Renaissance European civilization to the 19th century. Emphasis on the growth of the modern state system, the origins of capitalist economies, the scientific revolution and Enlightenment, and the political history of the principal monarchies.

**HY 320 3 credits****Revolutions and Revolutionary Movements**

Analysis and interpretation of various revolutionary movements in European and World history. Explores attempts by historians, sociologists, political theorists, and revolutionaries to understand the nature and significance of revolutionary activity.

**HY 321 3 credits****Ideas and Movements in 17th and 18th Century Europe**

A survey of the intellectual history of Europe in the early modern period, including the growth of skepticism and the secularization of thought, the scientific revolution, the Enlightenment and the creation of a liberal climate of opinion, and the origins of modern political and economic theory.



**HY 322 3 credits****Ideas and Movements in 19th and 20th Century Europe**

An examination of such intellectual currents as romanticism, liberalism and conservatism, nationalism, socialism and capitalism, and social Darwinism. Attention will be paid to the development and maturation of these currents in the 19th century, and their modification in the 20th century.

**HY 323 3 credits****War and Diplomacy in the Modern World:****French Revolution to World War I**

This course will analyze the causes, prosecution and impact of warfare prior to World War I, including international relations and technological advancements. Emphasis will be placed on the development of mass armies, the relationship between domestic politics and international war, the wars of imperialism and the social and economic underpinning of modern warfare.

**HY 324 3 credits****War and Diplomacy in the Modern World: World War I to the Present**

A study of the military and diplomatic history of warfare since World War I. Emphasis will be placed on the relationship between the peace settlement and the causes of World War II, the Cold War, and post-World War II revolutionary warfare.

**HY 325 3 credits****European Overseas Expansion 1500-1800**

Details European mastery of the oceans from the beginning of long-distance trade with Africa to colonization and empire-building in Asia and the Americas. Emphasis on the pioneering activities of Portugal and the competing interests of Spain, the Netherlands, France, and England.

**HY 326 3 credits****Modern Imperialism**

An evaluation of both the theory and practice of European imperialism from 1800 to the present. In addition to a study of the major modern empires, the course will treat the phenomenon of decolonization and informal empire. Emphasis will be placed upon a comparison of the major explanations of European imperialism with its historical reality.

**HY 327 3 credits****Topics in the History of Ideas**

Treats the history of ideas as an interdisciplinary approach to both intellectual history and the history of European society. Topics will vary with the instructor.

**HY 328 3 credits****Topics in the Social History of Modern Europe**

Selected topics in European social history since the French Revolution. Examines the role of religious enthusiasm in the growth of revolutionary movements, in the rise of liberalism and capitalism, and in the political history and overseas expansion of the early modern states.

**HY 331 3 credits****The Renaissance**

A survey of political, economic, and cultural developments in Europe from 1300 to 1500 with special emphasis on Italy.

**HY 332 3 credits****The Reformation**

A survey of the background of the Reformation, the religious changes of the period, the role of reformers such as Luther, Calvin and Zwingli, and the effects of reform between 1500 and 1648.

**HY 333 3 credits****English History I**

A survey of the history of England to the period of the Civil Wars and the Revolution of 1688, with attention to social, economic, political and cultural changes.

**HY 334 3 credits****English History II**

The history of England from the Revolution of 1688 to the present, tracing the change from an agricultural, rural society to a modern, industrial world power.

**HY 335 3 credits****19th Century Britain**

An examination of the social, political, intellectual and economic transformation of Britain in the 19th century. Emphasis on social analysis of Victorian England, the evolution of the 19th century Empire, and the impact of empire upon internal developments.

**HY 336 3 credits****20th Century Britain**

A survey of British history from 1900 to the present. Emphasis will be placed upon a study of the welfare state, the impact of the world wars, the end of empire, and contemporary English society.

**HY 337 3 credits****English Constitutional History**

A survey of the legal and constitutional development of England from the Anglo-Saxon settlement to the Reform Bill of 1832. Attention to documents and other contemporary materials (in English).

Recommended for pre-law students.

Prerequisite: HY 333 and HY 334.

**HY 341 3 credits****France to 1789**

A survey of French history in the 17th and 18th centuries. Topics include the rise of the Bourbon monarchy, the reign of Louis XIV, the growth of religious and political dissent, the struggle for European hegemony and overseas empire, the cultural influence of France in the Enlightenment, and the crisis of the old regime.

**HY 342 3 credits****French Revolution and Napoleon**

A study of the Revolutionary and Napoleonic periods in French history, from the crisis of the old regime to the restoration of the Bourbon monarchy. Emphasis will be placed on political change and the revolutionary transformation of French society.

**HY 343 3 credits****France in the 19th Century, 1815-1914**

This course will examine the many changes of regime in France, the impact of revolutionary and counterrevolutionary politics, the Franco-Prussian War and the Third Republic, France's empire, and the development of capitalism and industrialization.

**HY 344 3 credits****France in the 20th Century**

A study of the impact of two major wars, Vichy and the Resistance, the decline of the Third and the establishment of the Fourth and Fifth republics, loss of Empire, and changing economic and political conditions.

**HY 347 3 credits****History of Italy in the 19th Century**

A detailed study of the Risorgimento, or movement for Italian unification. Attention will be given to economic and cultural life as well as political events.



**HY 348 3 credits**

**History of Italy in the 20th Century**

An analysis of the rise and fall of Italian fascism, including a study of Italy's participation in both World Wars.

**HY 351 3 credits**

**History of Germany to 1786**

A study of the development of the Germanic states from the founding of the First Reich in the 10th century to the death of Frederick the Great. Topics to be considered include: the development and nature of the medieval empire, the conflict with the Papacy; the Reformation; the Counter-Reformation; the spread of absolutism; the development of Prussia; the role of the Hapsburgs in German affairs.

**HY 352 3 credits**

**History of Germany 1786 to 1890**

A study of Germany in the 19th century incorporating political, social and intellectual history. Topics to be considered include: the effects of the French Revolution and Napoleon on Germany; the Prussian reform movement; the growth of nationalism; important German philosophers and historians; the revolution of 1848; the role of Bismarck and the unification of Germany; Bismarck's foreign and domestic policy.

**HY 353 3 credits**

**History of Germany from 1890 to 1933**

A study of Germany from the dismissal of Bismarck to the appointment of Hitler incorporating political, social and intellectual history. Topics to be considered in depth include: the nature of the Second Reich under William II; the effects of industrialization; the role of neo-romantic political thought; the growth of anti-Semitism; German foreign policy before World War I; World War I; the revolution of 1918; the development and collapse of the Weimar Republic.

**HY 354 3 credits**

**History of Germany — 1933 to the Present**

A study of Germany from Hitler to the present day. Topics to be considered in depth include: the career and personality of Hitler; the growth of the Nazi Movement; the nature of the Nazi state; the origins of World War II; Germany's post-war recovery; the government, society and roles of the (West) German Federal Republic and the (East) German Democratic Republic.

**HY 356 3 credits****The Holocaust**

An examination of the Holocaust, including the psychosocial aspects of prejudice; the history of Jew hatred from Biblical times; the historical, political, racist, economic, social, psychological, literary, legal, theological, moral aspects of the Holocaust.

**HY 361 3 credits****Russia to 1855**

Survey of Russia from the 9th century to 1855. Stress will be given to political, social and economic developments.

**HY 362 3 credits****Russia in Reform and Revolt, 1855-1918**

Survey of Russia from 1855 to 1918. Emphasis will be on the great reforms, political and economic changes, the rise of revolutionary movements, the Revolution of 1905 and the Revolution of 1917.

**HY 363 3 credits****History of the Soviet Union**

Study of Russia from 1918 to the present. Stress will be given to the establishment of the Communist government, the Five Year Plans, and the social and cultural changes resulting from the adoption of Soviet ideology. Attention will be given to the role of Russia in the modern world.

**HY 364 3 credits****Social and Cultural History of Russia**

Topics pertaining to social classes, the development of serfdom, religion, art and literature in Russia from the 9th century to the present.

**HY 365 3 credits****Eastern European History**

The study of the Eastern European bloc from the Middle Ages to the present. Emphasis will be given to the political and economic development of these countries and the establishments of Communism in the post-World War II period.

**HY 370 3 credits****Latin American-United States Relations**

Surveys the long history of contacts between Anglo and Latin America, with fullest emphasis on the era of the national states and the evolution of the inter-American system. Economic, cultural, and political aspects of the relationship will be studied, up to the present.

**HY 371 3 credits****History of Portugal**

A survey from the Roman era to the present with emphasis on the post-medieval period. Topics include the emergence of a unified state, dynastic rivalries, the economy, overseas expansion and empire, constitutional development, the "New State" of Salazar, and the revolution of 1974.

**HY 376 3 credits****History of Brazil**

Emphasis on the period since independence in 1822. topics include the empire and slavery, coffee, European immigration, the republic, race and class, foreign economic and ideological influences, and Brazil in the 1970's.

**HY 378 3 credits****Slavery in the New World**

Deals with the trans-Atlantic slave trade and slavery in the Americas from the sixteenth to the nineteenth century. Emphasis on the beginning and development of the trans-Atlantic slave trade; moral issues, economics, and tactics of the trade; and, comparative study of the slave societies of Brazil, the Caribbean and the United States.

**HY 381 3 credits****Modern Japan**

A survey of modern Japan since the 19th century, with emphasis on post-war Japanese politics and Japan's present role in world affairs.

**HY 382 credits****Modern China**

A study of the major themes of modern Chinese history, including culturalism and nationalism, responses to the impact of the West, and the development of revolutionary ideology.

**HY 385 3 credits****History of the People's Republic of China**

A study of the world's largest country according to population. Covers the rise and fall of Nationalist China, the establishment of the People's Republic; social transformation, economic policy, bureaucracy and freedom, Mao's ideology, the people's communes, the cultural revolution, the new leadership and the new U.S./China relations.



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**HY 400-494 3 credits**

**Seminars in History**

Seminars will be offered variously in such fields as United States history, United States social and intellectual history, European history, English history, Russian history, Latin American history, Asian history and history of ideas.

**HY 499 3 credits**

**Honors Seminar**

The writing of an honors research paper. Students may elect to take 3 credits one semester and 6 another.

The Bachelor of Arts in Humanities and Social Sciences degree offers students the opportunity to broaden their understanding of the scope of human civilizations of the past and present and to develop their ability to think and write critically, all in the classical tradition of the liberal arts. This program prepares the student for a wide variety of careers in the human services, the professions, the corporate world, and, given its broad academic scope, it provides a foundation for career changes and retraining when necessary. It is strongly recommended that undergraduates who enroll in the Humanities and Social Sciences concentration maintain close contact with their advisors in shaping a coherent program around a given topic which may be approached through the wide variety of academic disciplines included under the major. Of the 120 credits required by the university to graduate, at least 30 course credits must be completed in advanced and specialized courses (300 level and above) at or under the sponsorship of SMU.

Note: In fulfilling the necessary requirements below no courses may be used in more than one category. For example, the same Sociology course cannot be used to meet both the Social Science requirement under Category 5 and the Concentration requirement under Category 6.

## Requirements

Note: In fulfilling the necessary requirements below no courses may be used in more than one category. For example, the same Sociology course cannot be used to meet both the Social Science requirement under Category 5 and the Concentration requirement under Category 6.

		Credits
<b>Category 1:</b>	<b>Freshman English: ENG 101, 102</b>	6
<b>Category 2:</b>	<b>Literature</b> English Literature, Literature in a Foreign Language, or Foreign Literature in Translation. English and Foreign Literature and Languages Departments shall specify which courses shall satisfy the requirements.	6
<b>Category 3:</b>	<b>Natural Sciences</b> Courses taught in the Chemistry, Biology, Physics, and Medical Technology Departments or in other departments at the discretion of the Student's advisor.	9
<b>Category 4:</b>	<b>Humanities</b> No more than 6 credits from any one field. Choose from: History Philosophy (including logic) Art and Music (excluding applied courses)	12

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<b>Category 5: Social Sciences</b>	<b>12</b>
No more than 6 credits from any one field. Choose from:	
Economics	
Political Science	
Psychology	
Sociology/Anthropology	
	<hr/> <b>Total: 45</b>

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**Category 6: Concentration**

After completing all distribution requirements in Categories 1 through 5 listed above, students should further consult their advisor and select courses from the Humanities and Social Sciences.

The following should be noted:

1. At least two areas must be selected in Humanities and two areas in the Social Sciences.
2. A minimum of six credits must be taken in each of the four areas selected.
3. The areas are:

**Humanities**

English  
Foreign Literature  
History  
Philosophy

**Social Sciences**

Economics  
Political Science  
Psychology  
Sociology/Anthropology

**Category 7: Free Electives**

Note: To graduate, a total of 120 credits is required. This includes the satisfactory completion of at least 30 course credits in advanced and specialized courses (300-level and above) at or under the supervision of SMU.

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## Judaic Studies Minor

The Judaic Studies Minor is an interdisciplinary focus for studies of Jews and Judaism, including but not limited to historical, literary, linguistic, and philosophical perspectives and approaches.

The primary educational goal of this minor is to provide students with a clear idea of how different approaches to the framing and answering of questions of systematic learning deal with the same social entity over a long period of history. From this minor, the student should learn at least three things:

1. some of the facts of the subject; that is, some knowledge of the history, philosophy, literature, and languages of the Jews;
2. some clear knowledge of how a historian, philosopher, literary critic, or scholar of language frames humanistic questions and proceeds to answer them; and
3. some basic ideas of what it means to look at the same subject from different perspectives.

The Judaic Studies Minor is open to any interested student with a cumulative grade point average of 2.0 and with a 2.5 grade point average in the major.

The minor is directed by an interdepartmental committee:

Robert P. Waxler, Ph.D., Department of English, Chairperson  
 Barbara Jacobskind, Ph.D., Department of English  
 Robert Michael, Ph.D., Department of History  
 Peter London, Ph.D., Department of Art Education

Each student in the Judaic Studies Minor is required to work closely with a faculty member in choosing courses offered through the minor. Although each student will have the flexibility to choose any course in the program, the advisors will guide the students so the program does not become a non-disciplinary exercise in Jewish Studies, but a crafted effort to show how diverse disciplines within the academic community deal with a single subject. Those students completing the minor will receive appropriate recognition on their diplomas and transcripts or a certificate of achievement.

Each student must take at least six courses within the minor. One course should be in the area of history, one in literature, and one in philosophy or language. Each student must take three upper division courses, as mandated by the Board of Trustees, including the Judaic Studies Interdisciplinary Seminar. Student will receive general distribution credits (3) in the humanities for each course unless specific courses are designated otherwise through cross-listing.

## Requirements

## Credits

Two, or more, courses from the upper division of the Judaic Studies offerings	6 or more
Judaic Studies Interdisciplinary Seminar	3
Three, or more, additional courses from the Judaic Studies offerings	9
<b>Minimum credits for minor in Judaic Studies</b>	<b>18</b>

Judaic Studies courses include the following:

- EN 218 Modern Jewish Literature
- HY 213 The World of the Old Testament
- HY 214 The Post-Biblical World
- HY 356 The Holocaust
- HY 260 The History of the Jewish people
- HY 400 Seminar in European History: A History of Christian-Jewish Relations

Please consult members of The Judaic Studies Committee for additional course listings.

## Faculty and Fields of Interest

**Nurit Budinsky** nonlinear differential equations, numerical analysis, nonlinear dynamical systems

**John Chandy** algebra

**Michael Crowley** analysis

**Jerome Freler** partial differential equations, numerical methods

**Adam Hausknecht** algebra, analysis of algorithms

**Warren Holt** statistics

**Anthony J. John** applied analysis, differential equations

**James Kaput** algebra, math-education and the philosophy of mathematics

**Robert Kowalczyk** probability, numerical analysis, computer applications

**Steven Leon** numerical analysis, linear algebra

**Robert McCabe** analysis

**Paul Parente (chairperson)** applied mathematics

**Ronald Tannenwald** dynamical systems

**Rufus Winsor** statistics math education

**Fred Wolock** statistics, operations research

## Mathematics Major

The Mathematics program outlined below lists the minimum requirements for the degree of Bachelor of Arts in Mathematics. Students may elect to earn a Bachelor of Science degree provided that they take an additional six (6) credits of Natural Science (but only courses that the science departments themselves would credit to a major in their areas). The humanities/social science requirements for the B.S. degree are a combined total of eighteen (18) credits.



The program for mathematics majors is designed to provide a solid foundation in the theoretical and applied aspects of mathematics necessary for a variety of professional careers. The flexibility within the third and fourth years was established to enable the mathematics major to concentrate in areas of their interest. For example, students may use our offerings as preparation for:

1. Secondary school teaching.
2. Graduate school in mathematics, applied mathematics, or computer science.
3. A career in applied mathematics in either the public or private sector.
4. Graduate school in an area that uses mathematics such as economics, biology or psychology.

At the end of the sophomore year, students, aided by their faculty advisors, should plan a course of study for the completion of the college program. The advanced courses selected during the third and fourth years should be consistent with the students' interests and goals. The above list is intended as illustrative only. Some mathematics majors have had success in law school, pharmaceutical school and medical school.

## Requirements

First Year			Semester Credits:	First	Second
MA	111	112	Analytic Geometry and Calculus I & II	4	4
CIS	261		Computer Programming Fortran	3	
ENG	101	102	Freshman English	3	3
			Humanities, Social Science or		
			Free Electives	6	6
				16	13
Second Year			Semester Credits:	First	Second
MA	211		Analytic Geometry and Calculus III	4	
MA	212		Differential Equations		3
MA	221		Linear Algebra		3
MA	263		Discrete Structures	3	
PH	111	112	Physics I and II	3	3
PH	121	122	Physics Laboratory	1	1
			Literature	3	3
			Humanities, Social Science or		
			Free Electives	3	3
				17	16

Third Year	Semester Credits:	First	Second
Mathematics Electives*		6	6
Humanities or Social Sciences		3	3
Unspecified Electives		6	6
		15	15

Fourth Year	Semester Credits:	First	Second
Mathematics Electives*		3	3
Humanities or Social Science		3	3
Unspecified Electives		7	6
		13	12

\*The 18 credits (6 courses) of mathematics electives in the third and fourth years must be chosen from among courses on the following list. Three credits may be waived for students in a teaching internship program.

## Mathematics Electives

MA 209	Modern Mathematics for Secondary School Teachers	T
MA 262	APL Programming and Applications	A
MA 302	Theory of Numbers	T
MA 311 312	Advanced Calculus I, II	T,G,A
MA 321 322	Topics in Applied Mathematics I, II	A,G
MA 331	Statistical Methods I	A,G
MA 332	Statistical Methods II	A,G
MA 353	Applied Linear Algebra	A
MA 361 362	Numerical Analysis I, II	A,G
MA 421	Functions of a Complex Variable	A,G
MA 441 442	Modern Algebra I, II	A,G
MA 443	Applied Modern Algebra	A,G
MA 451	Differential Geometry	G
MA 452	Higher Geometry	G,T
MA 461	Elementary Topology	G

MA 471	Probability	A,G
MA 472	Mathematical Statistics	A,G
MA 487	Math Inquiry I	T,G
MA 488	Math Inquiry II	T,G
MA 499	Selected Topics in Mathematics	

## \*Code

T—recommended for students preparing to teach

G—recommended for students preparing for graduate school

A—recommended for students in applied mathematics

Total number of credits necessary to graduate: 120

The mathematics department offers its electives according to the following schedule:

**Odd Numbered Years**

<b>First Semester</b>	<b>Second Semester</b>
MA 209	MA 302
MA 311	MA 312
MA 321	MA 322
MA 331	MA 332
MA 361	MA 362
MA 441	MA 442
MA 463	MA 487
	MA 421

**Even Numbered Years**

<b>First Semester</b>	<b>Second Semester</b>
MA 311	MA 312
MA 321	MA 322
MA 331	MA 332
MA 441	MA 353
MA 461	MA 443
MA 463	MA 451 or 452
	MA 488

## Computer-Oriented Mathematics Program

In order to meet the needs of our present-day computer-oriented society, the Mathematics Department presently offers an alternative to the mathematics major program of study—a computer-oriented mathematics program leading to the B.S. degree in Mathematics. This program requires a core of computer science courses and emphasizes the applied mathemat-



ics areas more than the mathematics program. This program allows the student a large choice of electives within the context of computer-oriented mathematics. The student can thus pursue his or her special interests in any particular phase of computer-oriented mathematics.

The program has virtually the same freshman and sophomore years as the other programs in mathematics, computer and information science, computer engineering and electrical engineering. This allows a student to find his or her interests and make a final choice from among these before the end of the second year without any loss of time.

A B.S. degree in Mathematics (COMP) allows the student to enter graduate programs that specialize in computer-oriented mathematics or enter industrial employment where physical and industrial problems are analysed mathematically.

The program offers a large choice of electives within the context of computer-oriented mathematics. The student can thus pursue his or her special interests in any particular phase of computer-oriented mathematics.

## Requirements

First Year			Semester Credits:	First	Second
MA	111	Anal. Geom. & Calc. I		4	
MA	112	Anal. Geom. & Calc. II			4
CIS	111	Intro. to Computers I		3	
CIS	112	Intro. to Computers II			3
ENG	101	Freshman English I		3	
ENG	102	Freshman English II			3
		Humanities/Social Science		6	3
CIS	261	FORTRAN			3
				16	16

Second Year			Semester Credits:	First	Second
MA	211	Anal. Geom. & Calc. III		4	
MA	212	Differential Equations			3
MA	221	Linear Algebra		3	
MA	263	Discrete Structures			3
CIS	263	Data Structures		3	
CIS		Elective*			3
PH	111	121		4	
PH	112	122			4
		Humanities/Social Science		3	3
				17	16

Third Year			Semester Credits:	First	Second
MA 321	Topics in Applied Math I		3		
MA 322	Topics in Applied Math II				3
MA 331	Statistical Methods I		3		
MA 332	Statistical Methods II				3
	Science Elective**		3		3
	Free Elective		3		3
	Literature		3		3
				15	15
Fourth Year			Semester Credits:	First	Second
MA 361	Numerical Analysis I		3		
MA 362	Numerical Analysis II				3
	Humanities/Social Science		3		
	Technical Elective***		3		3
	Free Electives		6		4
				15	10
			Total Credits:		120

\*The CIS Elective is defined as any course in Computer and Information Science which is accepted for credit by majors in that program.

\*\*The Science Elective is defined as any course in Biology, Chemistry, or Physics which is accepted for credit by majors in those programs.

\*\*\*The Technical Elective is defined as any upper division Mathematics or Computer and Information Science course.

## Graduate Program

The graduate program in mathematics is intended to be a terminal course in mathematics that is useful for both industry and teaching. A student beginning study for an M.S. in mathematics will meet with a faculty advisor, and a program of study will be developed. It is expected that the courses will be basically from the applied mathematics offerings, although theory courses will be available. Also, the student will be allowed to take courses in computer science (at the graduate level; maximum of 6 hours, except by special permission.) Students receiving their M.S. degrees will be prepared for work in industry, with applied courses of use in industry, such as Statistics, Operations Research, Mechanics and Computer Science. (For full information about the Graduate Program, see the Graduate Catalogue.)

## Mathematics Courses

### **MA 003 1 credit**

#### **Trigonometry**

This self-paced course is designed for the student who has little or no trig background. The course content includes circular trigonometry, graphing of trig functions and other topics necessary in an MA 111 and MA 105 course series.

### **MA 100 3 credits**

#### **Basic Algebra**

An introductory level algebra course intended primarily for those with weak or no skills or those who have been away from the subject for some time. This course provides the algebra background required for all entry level courses in mathematics. This course may not be used to fulfill the total credit requirements for graduation.

### **MA 101 3 credits**

#### **Elements of College Mathematics I**

MA 101, 102 is a terminal course for student whose curriculum calls for one year of mathematics; It is also a prerequisite for MA 231. The first semester covers selected topics from algebra, set theory, matrix algebra, and elementary functions.

### **MA 102 3 credits**

#### **Elements of College Mathematics II**

Introduction to differential and integral calculus.

Prerequisite: MA 101 or MA 103.

### **MA 103 3 credits**

#### **Finite Mathematics**

Will cover selected topics from : Logic, Set Theory, Vectors and matrices, Linear Programming, Probability, Graphs and Theory of Games. May be taken in lieu of MA 101.

Prerequisite: Four (4) years of high-school college-prep math.

### **MA 104 3 credits**

#### **Fundamentals of Statistics**

This course will be developed around the mathematical techniques involved in: Organizing data, averages and variation, elementary probability theory, the binomial distribution, normal distributions and related topics, estimation, hypothesis testing, regression and correlation, Chi Square: tests of independence, Chi Square: goodness of fit and analysis of variance: comparing several sample means.



**MA 105 3 credits****Technical Calculus I**

First semester of a four-term calculus sequence required of technology students and recommended for non-physical science majors desiring a basic introduction to analysis. The first term will review those topics from algebra and trigonometry needed in the sequel. Then the basic concepts of the differential calculus will be studied.

**MA 106 3 credits****Technical Calculus II**

Continuation of MA 105. Further study of algebraic and transcendental functions of one variable and topics from the integral calculus of these functions.

Prerequisite: MA 105

**MA 107 3 credits****Modern Math and Methods for Elementary Teachers I**

A course designed to enable teachers to cope with the problems of the changing modern mathematics curriculum. Current issues, attitudes and learning theories will be studied, including the mathematical foundations of the elementary school curriculum. The course is classroom oriented and makes heavy use of films and lab materials.

**MA 111 4 credits****Analytic Geometry and Calculus I**

First semester of a four term sequence required of majors in mathematics, the physical sciences and engineering. Recommended for others desiring a thorough background in elementary analysis. Term I will cover topics in analytic geometry, the concepts of function and limit, continuity, differentiability and integrability of elementary algebraic and transcendental functions.

Techniques of differentiation and applications will then be studied.

**MA 112 4 credits****Analytic Geometry and Calculus II**

Continuation of MA 111. Topics from the integral calculus, stressing techniques of integration (including numerical methods). Infinite series.

Prerequisite: MA 111.

**MA 131 3 credits****Introductory Mathematics**

This course is designed to provide students with the precalculus background necessary for MA 111 or MA 105. The course covers topics in algebra, trigonometry and finite mathematics.

**MA 132 3 credits****Introduction to Computers and their Application to Mathematics**

Required of mathematics majors and highly recommended for all students in the physical, natural, and behavioral sciences. The course covers topics in computer fundamentals, FORTRAN computer language, mathematical problem formulation and the solution of numerical and non-numerical problems. Students will write several programs to find solutions to various elementary mathematical problems.

**MA 203 3 credits****Technical Calculus III**

Continuation of MA 106. Topics include conic sections, polar coordinates, functions of two variables, partial differentiation, multiple integration and infinite series.

Prerequisite: MA 106

**MA 204 3 credits****Elementary Differential Equations**

Techniques in the solutions of ordinary differential equations, and applications from engineering. Similar to MA 212 with less emphasis on theory and more on applications. The natural continuations of MA 203.

Prerequisite: MA 203.

**MA 209 3 credits****Modern Math for Secondary School Teachers**

Designed for present and future teachers, the course emphasizes nematics and problem-solving. Included will be critical readings and discussion of past and present trends in the teaching of mathematics at the secondary level.

**MA 211 4 credits****Analytic Geometry and Calculus III**

Continuation of MA 112. Two and three dimensional vectors, partial differentiation, multiple integrals and applications.

Prerequisite: MA 112.

**MA 212 3 credits****Differential Equations I**

Continuation of MA 211. Ordinary differential equations of the first order, linear differential equations of the  $n$ th order, some nonlinear second order equations, series solutions and Laplace transforms.

Prerequisite: MA 112.

**MA 221 3 credits****Linear Algebra**

Required of all second-year mathematics majors and recommended for students in the physical, natural, behavioral and management sciences. Course material includes systems of linear equations, matrix theory, vector spaces, linear transformations, Eigenvalues.

Prerequisite: MA 111.

**MA 231 3 credits****Elementary Statistics I**

This is a course in fundamental business statistics. The text, examples, and applications are all business-oriented. The first-semester topics include descriptive statistics, probability, estimation, statistical inference and sampling.

**MA 232 3 credits****Elementary Statistics II**

Continuation of MA 231. Regression and correlation analysis. Analysis of variance. Goodness-of-fit tests. An introduction to Bayesian decision methods.

Prerequisite: MA 231.

**MA 261 3 credits****Foundations of Mathematics**

Recommended for students wishing an insight to the rudiments of abstract mathematics. Retracing of geometry and other topics from an advanced view point. Discussion of the axiomatic method, and a development of a small mathematical system.

Prerequisite: MA 111.

**MA 262 3 credits****APL Programming and Applications**

Recommended for mathematics, physics, natural science, education and management majors. The course includes a half semester of intensive study of APL. Later the student pursues a project in his or her area of interest. Projects are as varied as the computer simulation of baseball games, heat flow, atomic radiation, the analysis of stock portfolios and others.

Prerequisite: Permission of Instructor.



**MA 263 3 credits****Introduction to Discrete Structures**

Review of set algebra including mappings and relations, algebraic structures including semigroups and groups. Elements of the theory of directed and undirected graphs. Boolean algebra and propositional logic. Applications of these structures to various areas of computers.

**MA 271 3 credits****Astronomy I**

The course begins with a survey of astronomy from ancient to modern times. The first semester briefly reviews ancient astronomy and the physics of orbiting bodies. The earth, moon, and solar system are dealt with in some detail. The course concludes with a survey of the other bodies of the solar system, viz. minor planets, comets, and meteors.

Prerequisites: MA 102 or MA 111.

**MA 272 3 credits****Astronomy II**

This course concentrates on measurement in space and stellar motions. Stellar spectra, binary stars and the galaxy are studied. The latter segment of the course discusses stellar energy. The course concludes with a study of the origin and evolution of the universe.

Prerequisite: MA 271.

**MA 295 3 credits****Celestial Navigation**

The object of this course is to enable the student to determine his geographical co-ordinates using the celestial observations. Bubble sextants using the artificial horizon are employed. Various techniques for solving the astronomical triangle will be discussed with emphasis on the solution using H.O. 249. Special attention will be given to star identification as this relates to navigational stars.

Prerequisite: Permission of instructor.

**MA 316 3 credits****Turtle Geometry**

Turtle Geometry is an area of mathematics which results from the investigation of some traditional mathematics topics through a new medium, the computer, and computer language LOGO. The use of the language permits the student to formulate mathematics as well as 'do' mathematics. The topics reinvestigated are primarily from plane geometry and lead naturally to the investigation of topics more often presented at the graduate level including topology and differential geometry.

Among the areas within the reach of the student via this medium are topics from general relativity and complex analysis. This course endeavors to provide the student with an equal balance of the process and product of mathematics in a variety of contexts.

Prerequisites: MA 261 and Computer Fluency or Permission of Instructor.

**MA 321 3 credits**

**Topics in Applied Mathematics I**

This course covers a study of Fourier Series and Integrals, Fourier and Laplace Transforms, Partial Differential Equations.

Prerequisite: MA 212

**MA 322 3 credits**

**Topics in applied Mathematics II**

Continuation of MA 321. This course covers Bessel functions and Legendre polynomials; calculus of variations, vector analysis.

Prerequisite: MA 321.

**MA 331 3 credits**

**Statistical Methods I**

A calculus-based introduction to statistics. Probability and combinatorial problems. Discrete and continuous random variables. Various distributions including the binomial, Poisson, hypergeometric normal, gamma and chi-square. Moment generating functions, transformations and sampling distributions.

Prerequisite: MA 112.

**MA 332 3 credits**

**Statistical Methods II**

**Continuation of MA 331.**

Classical estimation methods. Hypothesis testing. Chi square tests for goodness-of-fit and independence. Regression and correlation analysis. One way and two-way analysis of variance including factorial designs and tests for the separation of means.

Prerequisite: MA 331.

**MA 353 3 credits**

**Applied Linear Algebra**

Topics include: Orthogonality and least square problems, applications of eigenvalue, quadratic forms, Numerical Linear Algebra.

Prerequisites: MA 221 and CIS 261.

**MA 361 3 credits****Numerical Analysis I**

Theory and computer-oriented practice in obtaining numerical solutions of various problems. Topics include stability and conditioning, nonlinear equations, systems of linear equations, interpolation and approximation theory.

Prerequisite: MA 221, CIS 261, MA 212. (MA 221 may be taken concurrently.)

**MA 362 3 credits****Numerical Analysis II**

Numerical methods for solving initial value problems. Topics include: Numerical differentiation and integration, Euler method and Taylor's series method, Runge-Kutta methods, multi-step methods, and stiff equations.

Prerequisite: MA 361

**MA 421 3 credits****Complex Analysis**

Analytic functions, differentiation, integration, conformal mapping, calculus of residues and infinite series.

Prerequisite: MA 312.

**MA 441 3 credits****Modern Algebra I**

The study of relations, functions, groups, rings and fields.

Prerequisite: MA 261.

**MA 442 3 credits****Modern Algebra II**

This course deals primarily with the following: Sylow theorems, polynomials, field extensions and Galois theory.

Prerequisite: MA 441.

**MA 451 3 credits****Differential Geometry**

Analysis of curves and Surfaces. Frenet-Serret formulae. First and second fundamental forms for surfaces. Gaussian and mean curvature. Theorems of Meusnier and Rodrigues. Gauss-Bonnet theorem.

Prerequisite: MA 312.

**MA 452 3 credits****Introduction to Higher Geometry**

A survey of the history of geometry, emphasizing the scholars of antiquity. Topics from modern (college) geometry, projective and non-Euclidean geometries.

Prerequisite: MA 211.



**MA 461 3 credits****Elementary Topology**

An introduction to point-set and combinatorial topology.

Prerequisite: MA 312.

**MA 463 3 credits****Math Modelling**

Selected topics from the areas of linear programming, dynamic programming, Markov chains and game theory. Mathematical model building will be developed through the use of numerous case studies from the natural and social sciences, e.g., ecological models, network models, scheduling models, Urban structure, traffic flow, growth, etc.

**MA 464 3 credits****Simulations**

Deterministic and nondeterministic simulation. Random number generators, Monte Carlo techniques, discrete simulation techniques and simulation computer languages (e.g., GPSS, SIMSCRIPT). Standard Simulations Models, such as the national economy model, inventory control, banking, blackjack, etc., will be studied.

**MA 471 3 credits****Probability**

Review of topics in MA 331 at a more advanced mathematical level, and an introduction to Stochastic Processes.

Prerequisite: MA 332.

**MA 472 3 credits****Mathematical Statistics**

Review of topics in MA 332 at a more advanced mathematical level and from a decision theoretic point of view.

Prerequisite: MA 471.

**MA 487 3 credits****Mathematical Inquiry I**

Course is conducted as a seminar. An elementary question is posed to the students who must generate their own mathematics in an attempt to find a solution. The aim is to develop student independence and creativity.

Prerequisite: MA 212.

**MA 488 3 credits****Mathematical Inquiry II**

A second semester of inquiry, independent of the first.

Prerequisite: MA 212.

**MA 499 3 credits****Selected Topics in Mathematics**

A special course to meet the needs of students for material not encountered in other courses. Topics dealt with require the approval of the departmental chairperson.

Prerequisite: MA 212 and permission of department.

**MA 501 3 credits****Functions of a Complex Variable I**

This course consists of integration, differentiation, analytic continuation and power series of functions of a complex variable. Also included are entire and meromorphic functions, residue theory and conformal mapping with applications.

Prerequisite: Permission of Department.

**MA 502 3 credits****Functions of a Complex Variable II**

Continuation of MA 501.

Prerequisite: MA 501.

**MA 505 3 credits****Probability**

A rapid but thorough presentation of combinatorial analysis and discrete probabilities distribution theory and the mathematical foundations of probability from a measure theoretic point of view. Introduction to stochastic processes.

Prerequisite: Permission of Department.

**MA 506 3 credits****Decision Theory**

Statistical inference from a decision theory point of view. A mathematical and philosophical discussion of the foundations of Bayesian statistics and decision theory, with applications to illustrate the process of decision making.

Prerequisite: MA 505.

**MA 511 3 credits****Algebra I**

Groups, ring fields, Galois theory, unique factorization domains.

Prerequisite: Permission of Department.

**MA 512 3 credits****Algebra II**

Modules, multilinear algebra.

Prerequisite: Permission of Department.

**MA 521 3 credits****Probability**

Continuation of MA 471, with emphasis on combinatorial theory and greater extension into Markov chains; and stochastic processes, such as Poisson, pure births, birth and death, exponential holding times, and waiting line and servicing problems. Distribution theory and discussion of change of variable technique, with applications to special distributions.

Prerequisite: Permission of Department.

**MA 522 3 credits****Statistics**

Theory of estimation, with discussion of interval estimation, order statistics, limiting distributions, sufficient statistics, point estimation, and statistical hypotheses. Introduction to other statistical theory such as analysis of variance, linear statistical models, and non-parametric statistics.

Prerequisite: Permission of Department.

**MA 531 3 credits****Ordinary Differential Equations**

Review of elementary methods of integration of first-order, second-order linear, and  $n$ th order linear constant-coefficient differential equations.

Theorems of existence, uniqueness and continuity, in the small and large.

Study of plane autonomous systems. Approximate solutions and the theory of effective numerical integration. Sturm-Liouville theory.

Prerequisite: Permission of Department.

**MA 541 3 credits****Operations Research I**

A study of mathematical programming, including linear programming in a variety of situations, sensitivity analysis, and network analysis. Dynamic programming with relation to linear programming and network analysis, as well as special dynamic programming techniques. Introduction to applied probability problems.

Prerequisites: Permission of Department

**MA 542 3 credits****Operations Research II**

Continuation of operations research I with particular emphasis on queuing problems, inventory theory, applied Markov processes, and simulation.

Special topics in the mathematical programming such as integer and non-linear programming.

Prerequisite: MA 541.



**MA 551 3 credits****Calculus of Variations**

Variational problems without constraints. Gateaux variation of a functional. Weak and strong relative extreme values. The Euler-Lagrange equations. Transversality conditions. Hamilton-Jacobi theory and Pontryagin's Maximum Principle with applications to optimal control problems. The Lagrange multiplier rule for the problem of Meyer and its application to the problem of Lagrange and the isoperimetric problem. The Weierstrass necessary condition for a weak relative minimum.

Prerequisite: Permission of Department.

**MA 552 3 credits****Integral Equations**

Volterra equations of the first and second kind and their relationship to linear differential equations. Fredholm's equations with Pinchere-Goursat kernels. The Fredholm theorem for general kernels. Numerical solution of integral equations. The Fredholm solution of the Dirichlet problem. Symmetric kernels and orthogonal systems of functions.

Prerequisite: Permission of Department.

**MA 601 3 credits****Functions of a Real Variable I**

This course consists of topics in modern analysis including measure theory. Tiemann, Lebesgue and Stieltjes integrals. Applications to orthogonal expansions.

Prerequisite: Permission of Departments.

**MA 602 3 credits****Functions of a Real Variable II**

Continuation of MA 601.

Prerequisite: MA 601.

**MA 603 3 credits****Functional Analysis**

Review of Lebesgue integral. Study of specific examples of Hilbert and Banach Spaces. Abstract characterization of spaces. Applications to integral equations and partial differential equations.

Prerequisite: MA 602.

**MA 612 3 credits****Combinatorial Topology**

The combinatorial aspects of topology are studied. The topics include group properties, homology, homotopy and manifold.

Prerequisite: Permission of Department.

**MA 621 3 credits****Partial Differential Equations**

First order differential equations are studied. Higher order equations are classified into elliptic, hyperbolic and the general properties of each type are studied. Existence and uniqueness theorems are given.

Prerequisite: Permission of Department.

**MA 622 3 credits****Partial Differential Equations**

Continuation of MA 621.

Prerequisite: MA 621.

**MA 645 3 credits****Group Theory**

Subgroups, homomorphisms and isomorphism theorems, finite groups, p-groups, solvable and nilpotent groups, free groups, free products, group extensions and homological algebra.

Prerequisite: Permission of Department.

**MA 647 3 credits****Theory of Rings**

Prerequisite: MA 645

**MA 651 3 credits****Topics in Numerical Analysis I**

Topics include: Error propagation, function approximation, numerical linear algebra and non-linear equations.

**MA 652 3 credits****Topics in Numerical Analysis II**

Topics include: Numerical integration and differentiation, differential equations, partial differential equations and boundary valued problems.

**MA 670 3 credits****Methods of Mathematical Physics and Engineering I****MA 671 3 credits****Methods of Mathematical Physics and Engineering II****MA 701****Seminar****MA 702****Seminar**

## Faculty and Fields of Interest

### Dorothy Bergeron

immunohematology, health education and professional issues

### Eileen Carreiro-Lewandowski

clinical chemistry, biochemistry and laboratory regulation

### Joan Felder (chairperson)

human genetics, health manpower and health education

### James Grifflth

microbiology, antimicrobial agents and health legislation

### Susan LeClair

hematology, health planning

### Anne T. Rodgers

clinical microbiology, laboratory management and allied health curriculum development

### Catherine Sheehan

immunology, special chemistry

## Requirements

Graduates in Medical Technology are eligible for national certification. Careers are available in hospital, industrial, public health and private laboratories as scientists, researchers, educators and administrators as well as in educational institutions and health care agencies. Varied graduate opportunities are available.

### Pre-Medical Technology

			Semester Credits:	First	Second
MT	111	Medical Technology Seminar			
MT	113	Introduction to Clinical Laboratory Techniques		1	
BO	111	Introduction to Human Physiology		4	
CH	151,152	Principles of Modern Chemistry		3	3
CH	163	Quantative Chemistry I			2
MA	104	Fundamentals of Statistics			3
ENG	101,102	Freshman English		3	3
		Humanities/ Social Sciences/Literature		3	6
				14	17



Second Year			Semester Credits:	First	Second
MT	315	Human Genetics and Lab		4	
MT	226	Pathophysiology and Lab			4
CH	251	Organic Chemistry		3	
CH	263	Bio-organic Chemistry Lab		1	
MT	360	Clinical Chemistry Applied to Diagnostic Techniques			4
		Humanities/Social Sciences/Literature		6	6
		Free Elective			3
				14	17

### Integrated Program of Medical Technology

Third Year			Semester Credits:	First	Second
MT	301	General Microbiology and lab		4	
		Medical Bacteriology and lab			4
MT	302	Clinical Immunobiology and lab		4	
		Humanities/Social Sciences/Literature			3
		Free Electives		6	6
MT	449	Special laboratory			2
				14	15

Fourth Year			Semester Credits	First	Second
MT	311	Medical Technology Seminar		2	
MT	401	Clinical Microbiology I		4	
MT	402	Clinical Microbiology II			4
MT	409	Immunohematology I		2	
MT	410	Immunohematology II			2
MT	419	Clinical Biochemistry I		4	
MT	420	Clinical Biochemistry II			4
MT	429	Hematology I		3	
MT	430	Hematology II			3
MT	450	Special Lab II			2
				15	15

Additional courses will be added if so required by the National Accrediting Agency of Clinical Laboratory Sciences.

A total of 122 credits is required.

\*Humanities-Social Sciences-Literature: A minimum of 6 credits must be taken in Humanities and Social Science with a total of 18 credits required. The Humanities include: History, Philosophy, Foreign Language (excluding Literature) and Art and Music (excluding applied courses.) The Social Sciences include: Economics, Political Science, Psychology and Sociology. Students must also elect a minimum of 6 credits of Literature approved by the Departments of English and Foreign Literature and Language.

Students may elect any available free elective courses for which they qualify. Pre-Medical Technology students may wish to select their elective courses to provide the basis for a particular Medical Technology specialty or so as to be eligible for another major of their choice should they change their career plans.

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### **Cytotechnology Option**

Graduates in Cytotechnology Option are eligible for national certification. Careers are available in hospital, public health and private laboratories as well as in women's centers as scientists, educators and administrators.

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### **Requirements for Cytotechnology Option**

<b>First Year</b>	<b>Semester Credits</b>	<b>First:</b>	<b>Second:</b>
MT 111 Medical Technology Seminar		1	
CH 151 152 Principles of Modern Chemistry I, II		3	3
MA 103 104 Finite Math, Fundamentals of Statistics		3	3
Electives and distribution requirements		8	9
		<hr/> 15	<hr/> 15

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<b>Second Year</b>	<b>Semester Credits</b>	
	<b>First</b>	<b>Second</b>
MT 315 Human Genetics	4	
BO 221 222 Anatomy and Physiology	3	3
BO 223 224 Anatomy and Physiology Lab	1	1
Electives and distribution requirements	7	11
	<hr/> 15	<hr/> 15

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<b>Third Year</b>	<b>Semester Credits</b>	
	<b>First</b>	<b>Second</b>
MT 301 General Microbiology	4	
MT 312 Medical Technology Seminar II		2
MT Electives	3	3
PI 318 Bioethics	3	
Electives and distribution requirements	5	10
	<hr/> 15	<hr/> 15

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#### **Fourth Year**

Thirty (30) credits from an AMA, National Accrediting Agency for Clinical Laboratory Sciences approved hospital school of cytotechnology.

Students must meet all college and university distribution requirements for a B.S. degree.

No students will be assigned to the fourth year of the option in an affiliated hospital unless he or she has the approval of the Department Affiliation Committee. The University cannot guarantee placement in the clinical affiliates.

Clinical fees are established by each affiliate. Students are required to pay this fee in addition to the usual university tuition.

Students are accepted into the Pre-medical Technology Program and apply for the Cytotechnology Option the junior year.



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**Entrance to Pre-Medical Technology Program**

Admission to the Pre-Medical Technology Program is arranged by the University Office of Admissions. In addition to the general course requirements for admission, the Department of Medical Technology more specifically requires 2 units of Natural Science and 3 units of College Preparatory Mathematics which must include 2 units of algebra.

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**Entrance to Integrated Medical Technology Program**

Admission to the Integrated Medical Technology Program requires the completion of all prerequisites in the Pre-Medical Technology Program and a science grade point average of 2.6. Review of all records of Pre-medical Technology Students will take place in the second semester of the sophomore year.

Admission of qualified applicants to the Integrated Medical Technology Program may be limited by the availability of faculty and clinical facilities. In the event that the number of qualified applicants exceeds available resources, students will be selected on the basis of academic standing.

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**Admission of Transfer Students, Certified Medical Laboratory Technicians and Certified Medical Technologists**

All students seeking admission to the Integrated Medical Technology Program must meet the same entrance requirements as those who apply to the Pre-Medical Technology Program. Credits earned in another college may be accepted as transfer credits after evaluation of official transcripts. All Medical Technology courses must be taken at Southeastern Massachusetts University.

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**Health Policies**

Prior to the start of the junior year, all students in the Integrated Medical Technology Program are expected to have a complete physical examination and the appropriate immunizations.

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### **Academic Regulations**

Each Medical Technology course must be satisfactorily completed with a C- (1.7) or better in order to enroll in another Medical Technology course. A failed course may be repeated once on the basis of space availability.

Each Medical Technology course, excluding seminars, consists of two components: 1) Theory and 2) Laboratory practice. A failure (D+ or lower) in the laboratory practice component will automatically result in the failure of both components of the course.

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### **Medical Technology Courses**

#### **MT 105 3 credits**

##### **Contemporary Topics in Human Ecology I**

Medical-social problems as they relate to modern society. Contemporary topics such as human inheritance and eugenics, factors affecting I.Q., basic human physiology, the disease state, birth control and abortion.

#### **MT 106 3 credits**

##### **Contemporary Topics in Human Ecology II**

Continuation of MT 105.

#### **MT 111 1 credit**

##### **Medical Technology Seminar**

This is a basic orientation to the field of laboratory medicine. The specialty areas of medical laboratory science, manpower problems, upward mobility, professional organizations, accreditation, certification, the team concept and professionalism are discussed.

Lecture-discussion-demonstration 1 hour.

Required of medical technology freshmen and transfer students.

#### **MT 113 1 credit**

##### **Introduction to Clinical Laboratory Techniques**

An introduction to the fundamental techniques used in the clinical laboratory. Topics shall include qualitative and quantitative testing on body fluids, safety and quality control.

Laboratory 4 hours.

**MT 226 4 credits****Pathophysiology**

This course involves the selection, generation and translation of basic information for the diagnosis, prognosis and management of clinical samples. Health screen vs. diagnostic and prognostic profiles will be discussed.

Lecture 3 hours/Laboratory 6 hours

Prerequisite: MT 315 or premission of instructor.

**MT 301 4 credits****General Microbiology**

This course presents the basic concepts of physiology, genetics, morphology, ecology, systematics and control of microorganisms. Laboratories shall supplement lecture presentations, stressing basic instrumentation and laboratory technique.

Lecture 3 hours/Laboratory 6 hours.

Prerequisite: CH 251 or premission of instructor.

**MT 302 4 credits****Medical Bacteriology**

This course present the theoretical basis for an indepth understanding of organisms of medical importance. Stress shall be placed on bacterial physiology as it relates to disease. Quality control statistical methods and current literature shall be analyzed.

Lecture 3 hours/Laboratory 6 hours.

Prerequisite: MT 301.

**MT 303 3 credits****Clinical Microbiology**

Man as an ecosystem. Host parasite relationships. Microbe's social impact on populations. Preventative medicine and the reationality of various defenses against infectious diseases; vaccines, antibiotic therapy and hospitalization. The study of major clinical entities such as pneumonias, menningitis, diarrheas, mycobacterioses, treponematodes and the emergence of man-produced infections completing the cycle of "life on man."

**MT 305 4 credits****Clinical Immunobiology**

Emphasis on the emerging concepts of immunobiology. Topics will include immunogens, immunoglobulins, and their interaction. Autoimmunity, infection and immunity, immunoematology, and cancer biology and immunity.

Lecture 3 hours/Laboratory 4 hours.



**MT 311 1-3 credits****Medical Technology Seminar I**

Selected topics shall be presented. Attendance at professional seminars, some of which are held in the evenings and/or on weekends are an integral part of this course.

Prerequisite: Junior or senior standing or permission of instructor.

**MT 312 1-3 credits****Medical Technology Seminar II**

Selected topics shall be presented by both faculty and students. Topics shall be submitted from affiliated hospitals.

Prerequisite: Junior or senior standing or permission of instructor.

**MT 315 4 credits****Human Genetics**

This course presents an intense survey of genetic mechanisms emphasizing the effect on human inheritance and disease.

Lectures 3 hours/Laboratory 4 hours.

**MT 360 4 credits****Clinical Chemistry Applied in Diagnostic Techniques**

Medically relevant carbohydrates, proteins, lipids, hormones, nonprotein nitrogenous substances and enzymes will be discussed. Clinical laboratory determinations in various body fluids or normal and abnormal state will be covered.

Lecture 3 hours/Laboratory 6 hours.

Prerequisite: CH 251 or permission of instructor.

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The following courses are presented on campus and at affiliated hospitals for an academic year that exceeds the regular academic year. This year will consist of 40 hours per week on campus and/or in affiliated hospital(s).

Lecture and laboratory hours shall comply with the standards set by the National Accrediting Agency for Clinical Laboratory Sciences. These are open only to Medical Technology students or permission of the Department.

**MT 401 4 credits****Clinical Microbiology I**

Emphasis is placed on the principles of practice of diagnostic microbiology such as specimen collection and handling, quality control, and laboratory safety. Clinical correlation, immunology and hospital surveillance will be included.

**MT 402 4 credits****Clinical Microbiology II**

Continuation of MT 401.

**MT 409 2 credits****Immunoematology I**

The principles of blood banking, including the preparation and storage of blood and its components, donor evaluation, transfusion, required record keeping, and processing of frozen blood shall be emphasized. Clinical correlation, quality control and laboratory safety will be included.

**MT 410 2 credits****Immunoematology II**

Continuation of MT 409.

**MT 419 4 credits****Clinical Biochemistry I**

Topics will include principles of the physical and chemical analysis of medically significant organic and inorganic substances found in human body fluids and tissues. Laboratory instrumentation and electronics, metabolic screening, specimen collection, clinical correlation, quality control and laboratory safety will be emphasized.

**MT 420 4 credits****Clinical Biochemistry II**

Continuation of MT 419.

**MT 429 3 credits****Hematology I**

Subjects include the analysis and clinical correlation of quantitative and qualitative variations in blood. Blood cell and other formed element morphology, the dynamics of coagulation, processing and evaluation of human bone marrow, quality control and laboratory safety shall be studied.

**MT 430 3 credits****Hematology II**

Continuation of MT 429.

**MT 439 2 credits****Clinical Microscopy**

Emphasis shall include the applied principles of the clinical evaluation of the physical and chemical constituents and formed elements of kidney filtrate. Quality control, laboratory safety and clinical correlation shall be covered.

**MT 449 2 credits****Special Lab I**

Study of special areas of the clinical laboratory. Intensive study of special topics in such areas as instrumentation, hematology, urinalysis, cytogenetics and nuclear medicine.

**MT 450 2 credits****Special Lab II**

Intensive, integrated study of selected topics in clinical laboratory science including management.

Lecture 3 hours/Laboratory 4 hours

Prerequisite: MT 315 or permission of instructor.

**MT 495 1-4 credits****Directed Study in Medical Technology**

The student selects a topic for in-depth study. Readings and reports are supervised by a member of the faculty. Terms and hours to be arranged.

Prerequisite: Permission of instructor.

**MT 496 1-4 credits****Continuation of MT 495.****MT 497 2 credits****Research Project**

The student initiates a proposal on a selected research topic. The research is done under the supervision of the appropriate faculty member.

A completed paper is required.

Four hours per credit hour per week.

Prerequisite: Permission of instructor.

**MT 498 1-4 credits****Research Project**

Continuation of MT 497.



The Multidisciplinary Studies Degree affords a student the opportunity to design an individual program around a specific goal (Pre-Medicine, Pre-Law, etc.) or problem (Ethnic Studies, Urban Studies, Environmental Studies, Women's Studies, etc). This program is limited to students in the College of Arts and Sciences. However, this does not limit the student to courses offered only in the College of Arts and Sciences.

The requirements for the Multidisciplinary Studies Degree are as follows:

1. General requirements for the B.A. Degree (or B.S. Degree, as the case may be) must be satisfied.
2. The student must, in lieu of a Department Chairperson, obtain a faculty member to act as faculty advisor.
3. To enroll as a candidate for the Multidisciplinary Studies Degree the student should, by the end of the sophomore year (and no later than the end of the junior year), file with the Dean of the College a proposal which has been approved by a faculty advisor and which includes a minimum of 30 credits in advanced and specialized courses (300 level and above), thus creating the student's own "major." The student becomes a candidate for the Multidisciplinary Studies Degree when the proposal is approved by the Dean.
4. Any subsequent changes in the recognized program of studies must be approved in writing by the student's advisor and by the Dean.

## Faculty and Fields of Interest

**Diane Barense** philosophy of logic, philosophy of science, philosophy of language, philosophy of feminism

**John Fitzgerald** classical American philosophy (Peirce, James, Dewey), philosophy of human nature, ethics

**Richard Hogan** ancient philosophy (especially Plato), analytic philosophy, history of philosophy, Nietzsche

**James Place** Hegel, Marx, Freud, Merleau-Ponty, Sartre, Husserl, Heidegger; aesthetics, phenomenology, existentialism, structuralism

**Thomas Wassmer (chairperson)** ethics, bioethics, meta-ethics, metaphysics, political philosophy, philosophy of religion, philosophy of law, medieval philosophy, modern philosophy, business ethics

## Philosophy Major-Philosophy Minor

The Department of Philosophy welcomes incoming freshmen as majors or minors. We are aware that philosophy is not usually represented in the secondary school curriculum and that there may be some reluctance on the part of students to enroll in the discipline. However, there are important reasons for considering philosophy as a field of study.

A major or a minor in philosophy offers students an excellent opportunity for cultivating skills in clear analytic reasoning. Philosophy is the cornerstone of the humanities. Contemporary philosophy is varied and offers the student outstanding examples of analysis of contemporary ethical and social problems, such as abortion, euthanasia, humanistic purpose, and the equality of women. It encourages habits of sustained effort in seeking clarity concerning persons and social values, comprehension of reality, and the nature of science. Other areas of recent philosophy introduce the student to existentialism and other new kinds of perspectives on human life such as phenomenology and analysis.

Students whose interests for a career lie elsewhere than in graduate work in philosophy may note that undergraduate work in philosophy is highly regarded as background for graduate work in other fields such as law, journalism, international relations, education, counseling and business administration. Moreover, a Bachelor's Degree in Philosophy is regarded favorably in the eyes of employers in commerce, banking and government and in the computer industry.

All 100 and 200 courses are open to freshmen.

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## Requirements for a Major in Philosophy

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The major program requires the student to complete the following courses:

Selection of Philosophy as a *Major* field requires 33 hours credit averaging at least 2.0 from these courses listed below in the department:

I. Departmental courses *must* include: (9 credits)

- |    |     |  |
|----|-----|--|
| PI | 110 | Logic (PI 108 Critical Thinking or PI 235 Symbolic Logic may be substituted) |
| PI | 221 | Ancient Philosophy (PI 223 Medieval Philosophy may be substituted)           |
| PI | 222 | Modern Philosophy  |

II. Departmental courses *must* include two courses in Contemporary Philosophy from the following three courses (6 credits)

- |    |     |                                     |
|----|-----|-------------------------------------|
| PI | 361 | Contemporary Continental Philosophy |
| PI | 371 | Contemporary British Philosophy     |
| PI | 382 | Contemporary American Philosophy    |

III. Departmental courses *must* include one seminar course (3 credits) from:

- |    |         |   |
|----|---------|---|
| PI | 410-419 | Seminar (consult course listings)       |
| PI | 350     | (Plato) may also be taken as a seminar. |

IV. Departmental courses *must* include at least 3 courses in systematic philosophy from the following list (300 to 349) (9 credits):

- |    |     |   |
|----|-----|---|
| PI | 301 | Theory of Knowledge                                 |
| PI | 303 | Metaphysics   |
| PI | 311 | Philosophy of Language                              |
| PI | 315 | Meta-Ethics   |
| PI | 316 | Political Philosophy                                |
| PI | 318 | Bioethics   |
| PI | 321 | History and Philosophy of Science and Technology II |
| PI | 323 | Philosophy of Art                                   |
| PI | 324 | Philosophy of History                               |
| PI | 325 | Philosophy of Religion                              |



PI	326	Philosophy of Law
PI	332	Philosophy of Human Nature
PI	341	Structuralism

V. The remaining 6 credits may be satisfied by the selection of two courses from the following list:

PI	101	Problems of Philosophy
PI	102	Philosophical Aspects of Feminism
PI	107	Thinking and Writing
PI	108	Critical Thinking (if not taken under Section 1)
PI	200	Special Topics in Philosophy
PI	207	Introduction to Aesthetics
PI	210	Socrates
PI	215	Ethics I
PI	222	Modern Philosophy (if not taken under Section 1)
PI	223	Medieval Philosophy (if not taken under Section 1)
PI	224	Nineteenth Century Philosophy
PI	226	Marx
PI	227	Nietzsche
PI	231	History and Philosophy of Science and Technology I
PI	232	Inductive Inference
PI	235	Symbolic Logic (if not taken under paragraph I)

## Requirements for a Minor in Philosophy

Selection of Philosophy as a Minor requires a grade point average in one's Major to be at least 2.5.

Selection of Philosophy as a Minor also requires 18 credit-hours credit averaging at least 2.0 from the following courses:

I. One course in the History of Philosophy (3 credits)—either PI 221 Ancient Philosophy, PI 222 Modern Philosophy, or PI 223 Medieval Philosophy

II. Four courses (12 credits) from the following list, with the understanding that two of the courses must be in the upper division (300 to 391):

PI 101 Problems	PI 224 Nineteenth Century Philosophy
PI 102 Philosophical Aspects of Feminism	PI 226 Marx
PI 110 Logic	PI 227 Nietzsche
PI 207 Introduction to Aesthetics	PI 230 History of Science I
PI 210 Socrates	PI 232 Inductive Inference
PI 215 Ethics	PI 235 Symbolic Logic
PI 221 Ancient Philosophy (if not taken under I)	PI 301 Theory of Knowledge
PI 222 Modern Philosophy (if not taken under I)	PI 303 Metaphysics
PI 223 Medieval Philosophy (if not taken under I)	PI 311 Philosophy of Language
	PI 315 Meta-Ethics
	PI 316 Political Philosophy
	PI 318 Bioethics
	PI 320 Philosophy of Science

PI 322 History of Science II  
 PI 323 Philosophy of Art  
 PI 324 Philosophy of History  
 PI 325 Philosophy of Religion  
 PI 326 Philosophy of Law  
 PI 332 Philosophy of Human Nature  
 PI 341 Structuralism

PI 350 Plato  
 PI 361 Contemporary Continental Philosophy  
 PI 371 Contemporary British Philosophy  
 PI 382 Contemporary American Philosophy

III. One Seminar from PI 410-419 (3 credits)

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## Philosophy Courses

### PI 101 3 credits

#### Problems of Philosophy

This is an introduction to philosophy as the persistent and methodical attempt to think clearly about universal problems of human life, such as ways of knowing and studies in value. Every semester.

### PI 102 3 credits

#### Philosophical Aspects of Feminism

An introduction to philosophical reasoning, analysis of arguments and developing of critical skills, through a consideration of various topics relevant to feminism. Topics may include: presuppositions about woman's nature, abortion, sex equality, affirmative action. Every year.

### PI 105 3 credits

#### Special Topics In Philosophy

### PI 107 3 credits

#### Thinking and Writing

The material for "Thinking and Writing" will be drawn from "Freshman English," "Problems of Philosophy," and "Introduction to Logic": grammar and punctuation review, usage, vocabulary, documentation; the analysis and criticism of arguments, informal fallacies, meaning and definition, etc. The focal point of the course will be the reading and discussion of various philosophical essays (on such topics as the existence of God, human nature, education, love and death). Students will write expository and critical papers on this material which will be scrutinized in detail.

Upon successful completion of this course, the English Department will grant a waiver for ENG 101.

The course is limited to 20 students.

**PI 108 3 credits****Critical Thinking**

This is a course on informal logic; it will concentrate on the evaluation of reasoning in "real life" contexts. The material for analysis will be drawn from newspaper editorials, political speeches, media articles, textbooks, advertisements, etc.; we will concentrate on arguments about issues of current public interest.

The following topics will be emphasized: the identification of arguments; techniques for portraying argument structure; the evaluation and criticism of arguments; informal fallacies; the influence of language on clear thinking; advertising; the newsmedia; the nature of rational belief; science; elementary research techniques.

This course is designed for students with no previous background in philosophy. (Philosophy majors and minors should take PI 110 as their introduction to logic).

**PI 110 3 credits****Logic**

An introduction to the methods and principles used to distinguish correct from incorrect reasoning. The course aims at imparting skill in identifying fallacies in reasoning and in using elementary formal techniques to analyze natural language arguments. In addition, such topics as the nature of meaning, the various uses of language, and the logic of science are discussed. Every semester.

**PI 200 3 credits****Special Topics in Philosophy****PI 207 3 credits****Introduction to Aesthetics**

This course is offered as an introduction to philosophy. Paintings, photographs, poems, novels, and music will be examined in order to discover the styles of individual commitment through which people have tried to bring meaning into their lives. While attempting to grasp the aesthetic significance of each work of art, we will continually push toward an understanding of the philosophical dimension of human life as expressed in each work. Every semester.

**PI 210 3 credits****Socrates**

This course will be concerned with two sorts of problems. The first (the so-called 'Socratic Problem') is the problem of evaluating the evidence which we possess about Socrates. This will proceed by reading an analysis of Aristophanes' *Clouds*, Xenophon's *Memorabilia* and *Apology*, some pas-



sages from Aristotle and the following 'early' dialogues of Plato: *Apology*, *Crito*, *Euthyphro*, the *Charmides*, *Laches* and *Protagoras*. The second problem to be dealt with is the extraction and evaluation of the main tenets of Socrates' philosophy, such as the claims that virtue is knowledge and that no one ever does wrong willingly. Every year.

**PI 215 3 credits**

**Ethics I**

A critical examination of normative theories of obligation and value. A philosophical examination of some moral problems — abortion, euthanasia, death penalty, sexual equality, reverse discrimination, pornography and censorship, violence, and economic injustice. Every semester.

**PI 221 3 credits**

**History of Western Philosophy: Ancient**

A study of philosophy from its origin with the pre-Socratics to the middle ages. The major portion of the course will be devoted to the philosophies of Plato and Aristotle. Every semester.

**PI 222 3 credits**

**History of Western Philosophy: Modern**

A study of the major philosophical movements (rationalism, empiricism and critical philosophy) in the 17th and 18th centuries. Philosophers studied include Descartes, Spinoza, Leibnitz, Locke, Berkeley, Hume, Kant. In addition to these major philosophers, consideration will also be given to the work of Rousseau, Pascal, Malebranche, the French Enlightenment. Every semester.

**PI 223 3 credits**

**History of Western Philosophy: Medieval**

A study of the philosophical views developed from the 4th to the 14th centuries. The following Christian, Jewish and Islamic philosophers are studied: Augustine, Boethius, Scotus Erigena, Anselm, Abelard, John of Salisbury, Alfarabi, Avicenna, Averroes, Maimonides, Bonaventure, Bacon, Aquinas, Scotus, William of Ockham, Nicholas of Autrecourt, Marsilius of Padua. Every other year.

**PI 224 3 credits**

**Nineteenth Century Philosophic Thought**

Writings selected from a century of great philosophical vitality and versatility. The culminating achievements of the western philosophical tradition and the first powerful stirrings of major contemporary trends are fed by such currents as evolutionism, empiricism, idealism, positivism, existentialism, and dialectical materialism. Philosophers studied include Hegel, Fichte, Bradley, Schopenhauer, Comte, Mill, Spencer, Marx, Kierkegaard, and Nietzsche. Every other year.

**PI 226 3 credits****Marx**

Designed as an introduction to the work of Karl Marx for those students who do not necessarily have philosophical backgrounds. The thought of Marx will be presented in two parts. At first, the more philosophical thought of the young Marx will be examined in its relation to Hegel and his followers up to Marx's "setting of accounts" with German philosophy. The second part will deal with the more scientific phase of Marx's thought expressed in *Capital V.I.*

Marx's own works will form the reading in the course. Every other year.

**PI 227 3 credits****Nietzsche**

Focus on a critical analysis of the major philosophical themes in Nietzsche's thought. Emphasis is placed on Nietzsche's theory of truth, epistemology, and metaphysics. Nietzsche's roots in the classical tradition are also examined. Readings include most of Nietzsche's major works as well as secondary criticism. Every other year.

**PI 231 3 credits****History and Philosophy of Science and Technology I**

This course is a critical analysis of science and its methods, a study of the justification and the range of scientific knowledge.

Prerequisite: Semester course in Philosophy or consent of instructor, or third year major in Mathematics or the sciences.

**PI 232 3 credits****Inductive Inference**

In science, in legal argument, and in everyday life, we frequently make cogent inferences from evidence which provides less than conclusive support for our conclusions. This course critically examines theories about the structure and justification of such inductive reasoning. Included will be a study of theories of probability and of the nature of causation. Every other year

Prerequisites: PI 110, PI 235, or consent of instructor.

**PI 235 3 credits****Symbolic Logic**

A study of the formal techniques of sentential and predicate logic. The course aims at imparting skill in applying logic to natural language arguments and in recognizing and constructing correct deductions and refutations. Philosophical issues pertaining to the application of logic to natural language as well as elementary results of metalogic are discussed. As needed.

Prerequisite: PI 110 or consent of instructor.

**PI 300 3 credits****Special Topics In Philosophy****PI 301 3 credits****Theory of Knowledge**

This course presents historically important analyses of knowledge as a basis for forming a justifiable view of its scope and structure, and an understanding of its relation to other human activities. Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 303 3 credits****Metaphysics**

A study of some representative philosophical views on the general structure and ultimate explanation of reality. Some topics considered will be causality, chance and necessity, the problem of first cause. Consideration will also be given to some objections to metaphysics as a philosophical undertaking. Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 311 3 credits****Philosophy of Language**

An examination of how language relates to the world and to thought. Topics will include the nature of meaning, truth, metaphor, and linguistic competence; speech act theory; and the relation of logic to syntax and semantics. Readings will be from contemporary linguistics as well as from philosophy. Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 315 3 credits****Meta-Ethics**

Concentrates on the meaning of ethical terms, the objectivity of moral judgments and the justification of these moral judgments. The Is-Ought Question is studied at some length, as well as the possibility of an ontology of morals proposed by contemporary metaphysicians. Every other year.

Prerequisite: PI 215.

**PI 316 3 credits****Political Philosophy**

A study of some of the major themes and problems traditionally considered by political philosophers. A consideration of what constitutes a political problem and a discussion of the role of philosophy with regard to such problems. The course thus combines an analytical and an historical approach in the effort to relate traditional political thought to contemporary problems. Every other year. Prerequisite: Semester course in Philosophy or consent of instructor.



**PI 318 3 credits****Bioethics**

A study of the ethical issues related to death and dying, behavior control, genetic counseling and genetic engineering, and population limitation. It will study the work of specific research projects and institutes on those issues. Every other year.

Prerequisite: PI 215 or its equivalent or consent of instructor.

**PI 321 3 credits****History and Philosophy of Science and Technology II**

Selected topics in the history of such fields as physics, biology, chemistry or social science. Every year.

Prerequisite: PI 231

**PI 323 3 credits****Philosophy of Art**

Continues on a more advanced level the development of a theory of art already begun in the introduction to Aesthetics. Themes to be discussed include the nature of form and expression in art, the nondiscussive character of art, the similarities and differences between the artist's relation to the work of art and the spectators', the relation between art and subjectivity, the difference between the linguistic and visual arts, the social function of art, and many more. The works of a few major philosophers will be compared to give students alternative points of view. Every other year.

Prerequisite: Semester course in Philosophy, exclusive of Logic, or consent of instructor.

**PI 324 3 credits****Philosophy of History**

This course will consider various theories that have been proposed for interpreting history, as well as recurrent problems about the structure of historical explanation, the possibility of objectivity in history, and the relationship between history and the social sciences. Every other year.

Prerequisite: Semester course in Philosophy, exclusive of Logic, or consent of instructor.

**PI 325 3 credits****Philosophy of Religion**

Analytical and constructive study of central concepts and essential manifestations of religion. Both historical and contemporary readings are required. Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 326 3 credits****Philosophy of Law**

Specific problems about freedom, justice, responsibility and punishment will be considered, as well as problems of legal reasoning, analytical problems of definition and issues of the inter-relation of law and morality. Intellectually and practically important especially for students who are considering law school or politics. Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 332 3 credits****Philosophy of Human Nature**

The subject of this inquiry is circumscribed by the two related questions, "What is human nature?" and "What is our place in the nature of things?" A few major philosophers will be selected and studied in detail with respect to the answers to these questions. Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 341 3 credits****Structuralism**

This course will deal with recent European philosophical thought and will center primarily on a few of its French representatives of the 1950's and 1960's. Special emphasis will be given to the problem of the philosophical grounding of structuralist thought and to the possibility of reconciling it with the phenomenological-existential philosophies of consciousness. The course will begin by developing the thought of Maurice Merleau-Ponty and the influence of structuralist linguistics on him. Later, it will examine structuralist approaches in various human sciences. Major figures studied will include: Merleau-Ponty, Ferdinand de Saussure, Levi-Strauss, Foucault, Barthes, and Althusser. As needed.

Prerequisite: Semester course in Philosophy, exclusive of Logic, or consent of instructor.

**PI 350 3 credits****Plato**

The course will be concerned with an examination of the major themes in Plato's philosophy. Readings will be taken from dialogues of all three "periods" but emphasis will be placed upon the "middle dialogues." Every other year.

Prerequisite: PI 221 or consent of instructor.

**PI 361 3 credits****Contemporary Continental Philosophy**

A study of the various currents of continental European thought in this century with special concentration upon the forerunners and representatives of phenomenology and existentialism. Kierkegaard, Nietzsche, Husserl,

Jaspers, Heidegger, Merleau-Ponty and Sartre, among others, will be read. Every other year.

Prerequisite: Semester course in Philosophy, exclusive of Logic, or consent of instructor.

**PI 371 3 credits**

**Contemporary Anglo-American Philosophy**

This course concentrates on the dominant British theme of philosophy as analysis of statements about ourselves and the world. It will include Moore, Russell, Ryle, Wisdom, Austin, Strawson, and Wittgenstein. Every third year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 382 3 credits**

**Contemporary American Philosophy**

The major positions since the late 19th century (pragmatism, idealism naturalism and process philosophy) will be studied through selected texts from Peirce, James, Royce, Dewey, Santayana and Whitehead. Every other year.

Prerequisite: Semester course in Philosophy or consent of instructor.

**PI 410-419 3 credits**

**Seminar**

These courses provide an opportunity for intensive study of (1) major philosophers, such as Plato, Aristotle, Kant, Santayana, Whitehead, Wittgenstein, or (2) of philosophers related by a common theme in development, such as Aquinas, Scotus, Ockham, or Locke, Berkeley, Hume, or Descartes, Spinoza, Leibnitz, or (3) of current philosophical work.

Prerequisite: Major or Minor in Philosophy and/or consent of instructor.

**PI 420 3 credits**

**Directed Honors Thesis**

This course provides departmental guidance for a thesis developing out of the primary and continuing interest of the student.

Prerequisite: Major in Philosophy and 3.0 average in philosophy courses.

**PI 495 3 credits**

**Independent Study**

Prerequisite: Philosophy major.



## Faculty and Fields of Interest

**Zvi Bar-Yam** elementary particles

**Robert Bento** science and society, solar energy

**James de Pagter** atmospheric science

**John Dowd** elementary particles

**Kazi Haq** solid state and thin film physics

**Alan Hirshfeld** astrophysics

**Jong-Ping Hsu** symmetry principles and gauge field theories

**Wolfhard Kern** (Chairperson), elementary particles

**George Leung** theoretical particle physics and astrophysics

**Donald Presel** physics education

**Hanna Rudnicka** elementary particles

**John Russell** elementary particles

**Joseph P. Sauro** development of instructional resources

**Paul Ukleja** liquid crystals and biological physics

## Physics Major

A physics major at SMU is a candidate for the Bachelor of Science Degree. The requirements during the first two years include the basic courses in mathematics and physics. Throughout this period students should consult frequently with their departmental advisors and familiarize themselves with department activities such as the meetings and special lectures of the Physics Club.

At the beginning of the junior year the students aided by their advisors should plan a course of study for the completion of their college program. The advanced courses selected during the third and fourth years should be consistent with the student's interests and goals. These interests may be in physics or in allied fields such as astronomy, environmental science, biophysics, meteorology and oceanography. Career plans of the physics major may include graduate study in physics, materials science, biophysics, geophysics, medical physics, or in various branches of applied science or engineering. Other physics majors may wish to establish careers in industrial or government laboratories, or in teaching in secondary schools. A major in physics is often selected by students wishing to enter the professions of law, business or medicine with the competitive edge that a good physics background can provide.

Students may arrange for supervised independent study as well as for work on individual research projects, and there are frequent opportunities for student participation in faculty research.

## Requirements

Of the 120 credits needed for a Bachelor of Science degree in Physics, the department requires 39 credits in physics, 18 credits in specified courses in mathematics and computer science, and 8 credits in chemistry.\*

### First Year (Recommended Sequence)

			Semester Credits:	First	Second
PH	109, 110	Freshman Seminar		1	1
PH	111	Physics I: Mechanics		3	
PH	112	Physics II: Waves & Optics			3
PH	121, 122	Physics I, II Lab		1	1
MA	111, 112	Analytic Geometry and Calculus I, II		4	4
ENG	101, 102	Freshman English		3	3
		Humanities, Social Sciences, or Literature		3	3
				15	15

### Second Year (Recommended Sequence)

			Semester Credits:	First	Second
PH	211	Physics III: Electricity and Magnetism		3	
PH	212	Physics IV: Modern Physics			3
PH	221	Laboratory III: Electricity and Magnetism		1	
PH	222	Laboratory IV: Modern Physics			1
MA	211	Analytic Geometry and Calculus III		4	
MA	212	Differential Equations I			3
CIS	261	Principles of Computer Programming			3
CH	151, 152*	Principles of Modern Chemistry I, II		3	3
CH	161, 162*	Introduction to Applied Chemistry I, II		1	1
		Humanities, Social Sciences, or Literature		3	3
				15	17

\*Certain specified courses in Biology and Engineering may be substituted for Chemistry with the prior approval of the student's advisor and chairperson to accommodate specific career goals.

Each student is required to consult with his advisor before registering for courses in the third and fourth year of the physics major.

**Third Year (Recommended Sequence).**

			<b>Semester Credits:</b>	<b>First</b>	<b>Second</b>
PH	341, 342	Modern Physics and Quantum Mechanics I, II		3	3
		Humanities, Social Sciences or Literature		3	3
		Physics Electives (min. required)		3	3
		Additional Physics Electives or Free Electives		6	6
				15	15

Upper Division Laboratory Requirement: A minimum of 6 credits must be selected from the laboratory courses PH 321, 322, 421, 422.

**Fourth Year (Recommended Sequence)**

			<b>Semester Credits:</b>	<b>First</b>	<b>Second</b>
		Humanities, Social Sciences or Literature		3	3
		Physics Electives (min. required)		6	3
		Additional Physics Electives or Free Electives		6	7
				15	13

**Physics Electives:** A minimum total of 39 credits in Physics are required for graduation.

PH	251	252	Elementary Astrophysics I, II
PH	300	301	Undergraduate Seminar
PH	313*	314*	Mechanics and Wave Motion I, II
PH	321*	322*	Electronic Devices and Circuits
PH	343*	344*	Mathematical Physics I, II
PH	351	352	Physics of the Environment
PH	353		Radiation Protection
PH	361		Introduction to Geophysics
PH	411*	412*	Electric and Magnetic Fields I, II
PH	421*	422*	Advanced Physics Laboratory I, II
PH	441*		Statistical Thermodynamics
PH	470		Independent Study
PH	480		Undergraduate Research
PH	490		Senior Thesis
PH	531	532	Quantum Mechanics I, II
PH	541*	542	Solid State Physics I, II

\*Students who intend to continue their studies in physics at the graduate level should consult with their advisors. A typical course selection for students planning on attending graduate school is indicated above by a star after the course number.



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## Physics Minor

In the course of their studies, many SMU students acquire a background in basic physics and mathematics which enables them to take upper division physics courses. A number of these students may elect to extend their study of physics into more advanced areas. A major goal of the physics minor program is to provide encouragement and formal recognition for these students. It is often desirable to enhance understanding and mastery of a broader range of subjects than is provided in the student's major field alone. Another goal of the program is to establish the physics background needed to enter interdisciplinary fields which have a significant physics content. This would be particularly useful for students majoring in fields such as Chemistry, Mathematics, Engineering, and Computer Science. Students considering a career in fields such as Biophysics or Medical Physics would benefit from a minor in physics. To accommodate these students, the Physics Department offers a minor program.

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## Requirements

The following are the course requirements for a minor in physics:

- PH 111 Physics I - Mechanics 3 credits
- PH 112 Physics II - Waves and Optics 3 credits
- PH 211 Physics III - Electricity and Magnetism 3 credits

An additional nine credits in courses must be selected from the following list of upper division courses:

- PH 300 Undergraduate Seminar 3 credits
- PH 313 Mechanics and Wave Motion I (Mechanics) 3 credits
- PH 314 Mechanics and Wave Motion II (Vibrations and Waves) 3 credits
- PH 341-342 Modern Physics and Quantum mechanics I, II (note that PH 341 has PH 212 as a prerequisite) 3 credits each
- PH 351-352 Environmental Physics I, II 3 credits each
- PH 353 Radiation Protection 3 credits
- PH 411-412 Electric and Magnetic Fields I, II 3 credits each
- PH 441 Statistical Thermodynamics 3 credits

Certain other upper level and graduate courses may be substituted for the listed upper division courses but only with the approval of the Physics Department.

A student wishing to minor in physics must also acquire a substantial background in calculus (MA 111, 112 and 211 or equivalent are required) and must meet the university requirements of cumulative grade point averages and total number of credits. Specifically, a minimum of 54 credits is needed before a minor can be selected. The cumulative over-all grade point average, at the time of entry into the minor program, must be at least 2.0 and must be at least 2.5 for courses taken in the student's major field. In addition, the Physics Department requires that the cumulative grade point average in physics courses submitted for recognition of completion of a minor in physics be 2.0 or above.

Students who wish to enter this program must obtain approval of the Physics Department chairperson, preferably before enrolling in upper-division courses.

## Physics Courses

### **PH 101 3 credits**

#### **Introduction to Physics I**

An introductory course in physics covering mechanics, heat and thermodynamics. Emphasis is on fundamentals and their application to practical problems. Non-calculus presentation. MA 101 is recommended as prerequisite or corequisite.

### **PH 102 3 credits**

#### **Introduction to Physics II**

Continuation of PH 101. The topics covered include vibrations, sound, optics, electricity and magnetism. Non-calculus presentation. MA 102 recommended as prerequisite or corequisite.

### **PH 103 1 credit**

#### **General Physics Laboratory I**

A laboratory course that accompanies PH 101 or PH 107. An introduction to experimental techniques. Experiments in mechanics. Two hours weekly.

### **PH 104 1 credit**

#### **General Physics laboratory II**

A laboratory course that accompanies PH 102 or PH 108. Experiments in optics, electricity and modern physics using electrical measurement techniques. Two hours weekly.

**PH 107 3 credits****Basic Physics I**

An introductory course in physics covering mechanics, wave motion and heat. Emphasis is on principles, applications and the development of problem solving ability. Elementary calculus is used and a course in calculus is a corequisite.

**PH 108 3 credits****Basic Physics II**

Continuation of PH 107. The study of electricity and magnetism, optics, atomic and nuclear physics.

Prerequisite: PH 107.

**PH 109/110 1 credit****Freshman Seminar**

Seminar series on topics of current interest to physicists. One hour per week.

**PH 111 3 credits****Physics I: Mechanics**

Elementary mechanics including the principles of conservation of energy and momentum. Part of a four semester calculus-based sequence in the elements of physics. PH 121 to be taken concurrently. Four classroom hours weekly.

**PH 112 3 credits****Physics II: Waves and Optics**

Continuation of PH 111. Wave motion, heat and optics. PH 122 to be taken concurrently. Part of a four semester calculus-based sequence in the elements of physics. Four classroom hours weekly.

**PH 121 1 credit****Laboratory I: Mechanics**

A laboratory course that accompanies PH 111. A set of experiments illustrating the principles of mechanics for point particles, Newton's second law, the conservation of energy and momentum. 3 hours biweekly.

**PH 161 3 credits****Science, Technology, and Society I**

Interaction of science and technology with the individual and contemporary society. Non-mathematical presentation and in-depth study, during each term, of a major development in science, considered in its historical and social context. Currently the topic is the nucleus—the



development of the concept, its applications in meeting present and future energy needs as well as its abuse in weapons.

Prerequisite: None.

**PH 162 3 credits**

**Science, Technology and Society II**

The topic, "Evolution of Man and the Universe," is presented in a style similar to that of PH 161, dealing with the scientific and societal aspects of man's search for the origins of his environment. Ancient and modern astronomy and cosmological theories are discussed together with modern biological discoveries and their societal implications. Topics of guest lectures include genetic manipulation and the historical impact of scientific ideas. The course is not dependent upon and can be taken before PH 161.

Prerequisite: None.

**PH 163 3 credits**

**Energy and Energy Alternatives**

A non-mathematical yet quantitative survey of contemporary energy questions. Energy sources such as coal, oil, natural gas and solar energy including wind power are examined. Energy conservation techniques are examined in detail.

Prerequisite: PH 161 or equivalent.

**PH 171 3 credits**

**Planet Earth and Its Resources I**

Origin and history of earth; composition and structure of its interior, crust, oceans, and atmosphere. Plate tectonics and sea floor spreading; seismology, vulcanism and earthquakes; magnetism of earth. Forces shaping earth's surface, faults and folds, erosion, sedimentation and weathering. Earth materials: soil, minerals and ores, igneous, sedimentary, and metamorphic materials. Earth resources: salts and fertilizers, chemical supplies, and building materials.

Prerequisite: None.

**PH 172 3 credits**

**Planet Earth and Its Resources II**

Earth resources: rare and abundant metals and their uses, history of life on earth, the fossil record. Energy and fossil fuels. Nuclear energy sources, Uranium, Plutonium, and Deuterium. Water and its distribution, rate of use, and pollution. Atmospheric-oceanic circulation and heat balance. Weather and climate. Man as agent of change on Planet Earth. Outlook on Future.

Prerequisite: None.

**PH 180 3 credits****Scientific and Social Aspects of Solar Energy**

Examines the various options pertaining to the future development of solar energy in the U.S. Individual sources both direct and indirect (biomass, wind, etc.) are examined as to current state of the art and future potential. Different development schemes such as centralized or distributed modes are considered. The goal of the inquiry will be to determine the optimum paths for future development.

**PH 211 3 credits****Physics III: Electricity and Magnetism**

Electric fields, electric potential, capacitance, conduction, magnetic fields, inductance, electric and magnetic properties of matter, Maxwell's equations in integral form. Part of a four semester calculus-based sequence in the elements of physics. PH 221 to be taken concurrently. Four classroom hours weekly.

Prerequisite: PH 112.

**PH 212 3 credits****Physics IV: Modern Physics**

Introduction to modern physics: relativity, atomic, and nuclear physics. Part of a four semester calculus-based sequence in the elements of physics. PH 222 to be taken concurrently. Four classroom hours weekly.

Prerequisite: PH 211.

**PH 211 1 credit****Laboratory III: Electricity and Magnetism**

A laboratory course that accompanies PH 211. Introduction to electronic instrumentation, experiments on aspects of the laws of electricity and magnetism, electron beams, capacitance, inductance, magnetic materials. Three hours biweekly.

**PH 222 1 credit****Laboratory IV: Modern Physics**

A laboratory course that accompanies PH 212. Experiments in modern physics including radioactive decay, photoelectric effect, atomic excitation, and atomic spectra. Three hours biweekly.

**PH 251 3 credits****Elementary Astrophysics I**

This course explores basic concepts and modern developments in astrophysics at an elementary level. It can be used to fulfill the science requirement. Subjects to be discussed range from the solar system

and the structure and evolution of the stars to galaxies and the expanding universe. Telescopic observations will be arranged. Prerequisite: One year of science or mathematics or permission of instructor.

**PH 252 3 credits**

**Elementary Astrophysics II**

A continuation of PH 251, this course consists of a more detailed analysis of subjects introduced the preceding semester. Among the topics to be considered are Einstein's theory of relativity, spacetime, cosmology, and high-energy astrophysics including pulsars, quasars and black holes. Occasional laboratory sessions supplement the lectures with fundamental experiments related to astrophysics.

Prerequisites: PH 251 or permission of instructor.

**PH 261 3 credits**

**Physics of Music**

Descriptive acoustics course on the application of physical principles in explaining and describing many diverse phenomena. No mathematics beyond simple algebra will be used. Topics include properties of simple vibrators; waves on strings and in other structures; anatomy and functions of the ear; scales, temperaments, and harmony; acoustical environments; production and perception of musical tones in singing voice, lip reed, mechanical reed, air reed instruments, pipe organ, bowed string instruments, percussive string instruments, percussive instruments; electronic music and computer music systems.

Prerequisites: None.

**PH 300/301 3 credits**

**Undergraduate Seminar**

A seminar, conducted at the sophomore-junior level, devoted to the discussion of topics in modern physics, astrophysics and related topics.

**PH 313 3 credits**

**Mechanics and Wave Motion I**

Mechanics of particle systems including central force motion and two body scattering; accelerating coordinate systems; rigid body kinematics and dynamics; coupled oscillators, small vibrations and normal modes, introduction to Lagrangian methods.

Prerequisite: PH 112, MA 211.



**PH 314 3 credits****Mechanics and Wave Motion II**

Wave phenomena in mechanics, optics and acoustics. A study of the wave equation and its applications with emphasis on the general properties of waves. Interference, diffraction, reflection, refraction and polarization.

Prerequisite: PH 112, MA 211.

**PH 321 3 credits****Electronic Devices and Circuits I**

A lecture and laboratory course in electronic circuit theory covering both active and passive devices and elementary networks. Two hours lecture, three hours laboratory.

Prerequisite: PH 211, MA 211.

**PH 322 3 credits****Electronic Devices and Circuits II**

A continuation of PH 321 with emphasis on applications using the elements, devices and techniques of modern research, amplifiers, coincidence and scaling circuits, detectors, analog devices, digital and integrated circuits. Two hours lecture, three hours laboratory.

Prerequisite: PH 321.

**PH 341 3 credits****Modern Physics and Quantum Mechanics I**

Experimental evidence leading to the development of modern physics. Bohr-Sommerfeld theory of the hydrogen atom. Special relativity, introduction to the Schrodinger equation with solutions to simple problems leading to the study of one electron atoms. Electron spin, magnetic moment, and the fine structure in hydrogen spectra.

Prerequisite: PH 212.

**PH 342 3 credits****Modern Physics and Quantum Mechanics II**

Continuation of PH 341. Further applications of the principles of quantum mechanics with applications to many particle systems. Quantum statistics, atomic spectra of many electron atoms, nuclear structure, nuclear models and scattering.

Prerequisite: PH 341.

**PH 343 3 credits****Mathematical Physics I**

Development of mathematical tools useful in physics. Infinite series, complex numbers, linear algebra, vector calculus, Fourier series.

Prerequisite: PH 211, MA 212.

**PH 344 3 credits****Mathematical Physics II**

Continuation of PH 343. Complex variables, partial differential equations, boundary value problems, special functions, numerical methods.

Prerequisite: PH 343.

**PH 351 3 credits****Physics of the Environment I**

A lecture-seminar course applying physical concepts to environmental problems. Principles of energy conservation; transformations between different forms of energy; energy cycles in biosphere and geosphere. Solar radiation and earth's radiation balance, absorption, emission, and reflection. Study of populations and their distributions, exponential growth, reproduction rate and demographic trends. Utilization of scarce resources: metal ores, minerals, gas, oil and coal. Nuclear, geothermal and hydroelectric power.

Prerequisite: A one year course in physics or permission of instructor.

**PH 352 3 credits****Physics of the Environment II**

Continuation of PH 351. Future energy resources: solar energy, nuclear fission and breeder reactors, fusion power. Environmental effects of power generation: thermal, atmospheric, and radioactive pollution and their biological and health aspects. Circulation systems in atmosphere and ocean. Air pollution, smog and particulates, oxides of sulfur, carbon and nitrogen. Water pollution by oil and industrial wastes. Noise pollution, sonic booms and the SST.

Prerequisite: PH 351 or permission of instructor.

**PH 353 3 credits****Radiation Protection**

Introductory course on the basics of radiation protection for students interested in radiology, health care and technology, nuclear physics or engineering, radiation biology or chemistry, and environmental science. No mathematics beyond simple algebra will be used. Topics include X-rays and radioactivity, basic radiation physics, dosimetry and examples of shielding calculations; also a survey of radiation sources, detectors and measurement techniques. Radiation effects on living cells, tissues and organisms are studied as well as their long-lasting genetic effects on populations. Practical aspects of working with X-rays and radionuclides are discussed.

Prerequisites: 6 credits in physical or life sciences or engineering or college math

**PH 411 3 credits****Electric and Magnetic Fields I**

Study of the fields of static charges and constant currents, the properties of dielectric and magnetic materials, and magnetic induction leading to the formulation of Maxwell's equations.

Prerequisite: PH 211, PH 343.

**PH 412 3 credits****Electric and Magnetic Fields II**

Continuation of PH 411. Development of the wave equation. Electromagnetic waves in space and in matter. Study of radiation from time varying charge and current distributions.

**PH 421 3 credits****Advanced Physics Laboratory I**

A laboratory course designed to acquaint the student with current experimental techniques in physics and methods of data analysis. One hour lecture and four hours laboratory.

Prerequisite: PH 212.

**PH 422 3 credits****Advanced Physics Laboratory II**

A continuation of PH 421. Projects in experimental physics with emphasis on independent work by the student. One hour lecture and four hours laboratory.

Prerequisite: PH 421.

**PH 441 3 credits****Statistical Thermodynamics**

The laws of thermodynamics and their interpretation based on the microscopic behavior of matter. Entropy and probability, equilibrium, reversibility, thermodynamic functions, phase changes, quantum statistics. Applications to problems in solid state physics.

Prerequisite: PH 212.

**PH 470 3 credits****Independent Study**

Individual study of selected topics in physics under the guidance of a faculty advisor. This course is suitable for study of physics subfields of special interest to individual students and faculty members.

Prerequisite: Permission of Department.



**PH 480 3 credits****Undergraduate Research**

Individual work under the supervision of a faculty member on an experimental, theoretical, or literature review project in physics. This work may lead to a senior thesis project or may be concluded by a written report at the end of the term.

Prerequisite: Permission of Department.

**PH 490 3 credits****Senior Thesis**

Intensive individual work on an experimental or theoretical problem in physics under the guidance of a staff member. The special project is to be selected at the beginning of the senior year. Credit will be assigned in the second semester.

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## **Graduate Program**

The Physics Department offers a program of graduate studies leading to the Master of Science degree. The program is open to part-time as well as to full time students who are pursuing either teaching or research careers. Each student under the guidance of a graduate advisor follows a course of study that is in harmony with his or her background and individual goals and is designed to advance his or her understanding of the concepts of modern and classical physics. Close and informal contact with a faculty that is active in research enables the graduate student to keep abreast of current problems in physics and offers him or her the opportunity for original research.

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### **Research Programs and Facilities**

Experimental research is being conducted by the Department in the areas of high energy physics and solid state physics. Current theoretical research is on problems in elementary particles and symmetries, and astrophysics.

The experimental high energy physics group uses the facilities of the Brookhaven National Laboratory. Developmental work and instrumentation for experiments in high energy physics are carried out in the department laboratories on the SMU campus. Laboratories for studies in solid state physics are located on campus. Ample computation facilities are available.

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## Requirements

A minimum of 30 semester hours must be completed in certain advanced undergraduate and graduate (500) courses. Requirements for course distribution and grade average are specified under academic regulations.

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## Thesis

A written thesis is optional but frequently desirable from the viewpoint of both the student and his or her advisor. The thesis topic may range from research in one of the conventional fields of physics to research in physics education in areas such as the development of undergraduate courses and laboratories. The thesis may be assigned a maximum of six credits.

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## Language

There is no foreign language requirement.

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## Examination

The student must pass a written comprehensive examination that is taken for the first time after the completion of 15 hours of graduate study and before the completion of 24 hours. The examination places emphasis on undergraduate physics as well as upon graduate study.

For additional degree requirements consult the Bulletin of the Graduate School.

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## Physics Graduate Courses

The following advanced undergraduate courses are eligible for graduate credit:

**PH 313 3 credits**  
**Mechanics and Wave Motion I**

**PH 314 3 credits**  
**Mechanics and Wave Motion II**

**PH 341 3 credits**

**Modern Physics and Quantum Mechanics I**

**PH 342 3 credits**

**Modern Physics and Quantum Mechanics II**

**PH 411 3 credits**

**Electric and Magnetic Fields I**

**PH 412 3 credits**

**Electric and Magnetic Fields II**

**PH 421 3 credits**

**Advanced Physics Laboratory I**

**PH 422 3 credits**

**Advanced Physics Laboratory**

**PH 441 3 credits**

**Statistical Thermodynamics**

**PH 511 3 credits**

**Advanced Mathematical Physics I**

Mathematical methods in physics. Linear algebra, complex variable theory, eigenfunction expansions and orthogonal functions, the special functions of mathematical physics.

**PH 512 3 credits**

**Advanced Mathematical Physics II**

Partial differential equations, integral equations, and Green's functions. Generalized functions. Calculus of variations. Group theory.

**PH 521 3 credits**

**Theoretical Mechanics and Relativity**

The Lagrangian and Hamiltonian formulation of Newtonian mechanics. Variational principles, transformation theory, Poisson brackets, and Hamilton-Jacobi theory. Special relativity and the covariant formulation of particle mechanics. Introduction to general relativity.

**PH 522 3 credits**

**Electromagnetic Theory**

Boundary value problems in electrostatics, Green's functions and eigenfunction expansions, momentum and energy of the electromagnetic field, radiation, multipole expansions, scattering. Special relativity and Lagrangian formulation, radiation from moving charge, radiation reaction.



**PH 531 3 credits****Quantum Mechanics I**

A course in the fundamentals of quantum mechanics. Schrodinger equation, operator techniques, angular momentum, central force motion, spin, matrix representations, and the theory of measurement.

**PH 532 3 credits****Quantum Mechanics II**

Radiative processes. The theory of scattering. Variational principles. Symmetry and invariance principles, second quantization. Introduction to relativistic quantum mechanics and field theory.

**PH 541 3 credits****Solid State Physics I**

Basic concepts of solid state physics. Crystal structures, lattice vibrations, ionic crystals. Dielectric and optical properties of insulators, ferroelectrics, free electron theory of metals, energy bands, semiconductors.

**PH 542 3 credits****Solid State Physics II**

Theory of conductivity and related effects. Rectification and transistors. Imperfection in crystals. Plastic deformation color centers, optical properties of solids. Theory of magnetism.

**PH 551 3 credits****Nuclear Physics**

A discussion of topics in nuclear physics including nuclear forces, nuclear models, nuclear reactions and nuclear decay.

**PH 522 3 credits****Elementary Particle Physics**

Relativistic kinematics of particle motion, phenomenological and dynamical theories of particle interactions and classification of particles according to symmetry principles.

**PH 561 3 credits****Physics of the Environment I**

A lecture-seminar course with significant graduate student participation in seminar preparation. Principles of energy conservation; transformations between different forms of energy; energy cycles in biosphere and geosphere. Solar radiation and earth's radiation balance, absorption, emission, and reflection. Study of populations and their distributions, exponential growth, reproduction

rate and demographic trends. Utilization of scarce resources: metal ores, minerals, gas, oil and coal. Nuclear, geothermal and hydroelectric power.

**PH 562 3 credits**

**Physics of the Environment II**

Continuation of PH 561. Future energy resources: solar energy, nuclear fission and breeder reactors, fusion power. Environmental effects of power generation: thermal, atmospheric, and radioactive pollution and their biological and health aspects. Circulation systems in air and ocean. Air pollution, smog and particulates, oxides of sulfur, carbon and nitrogen. Water pollution by oil and industrial wastes. Noise pollution, sonic booms and the SST.

**PH 565 3 credits**

**Geophysics**

A course for graduate student in the basic principles of geophysics. Propagation of elastic waves and their application to seismology, consideration of the earth's gravity, geomagnetism, thermal properties and radioactivity.

**PH 570 3 credits**

**Independent Study**

Individual study under the supervision of a faculty member in an area of physics that is not otherwise part of the graduate course offering. Primarily for graduate students.

**PH 575 3 credits**

**Graduate Seminar**

A seminar devoted to the discussion of topics in modern physics and related subjects. Primarily for graduate students.

**PH 580 3 credits**

**Graduate Research**

Directed research on a project in experimental, theoretical, or applied physics under the supervision of a faculty sponsor. The research may lead to a graduate thesis project or may be concluded by a written report at the end of one or two terms.

**PH 590 Not to exceed 6 credits.**

**Graduate Thesis**

Thesis research on an experimental or theoretical project in physics under a thesis advisor. Project will usually be selected at the beginning of the second year of graduate study. Submission of a formal thesis required at conclusion.

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## Faculty and Fields of Interest

**Shaukat Ali** public administration, comparative politics: South Asia, non-western political thought.

**Naseer Aruri** international relations, foreign policy, comparative politics: Middle East, revolutionary change.

**John Carroll** American institutions, civil liberties, courts, judges and politics, Massachusetts State Legislature.

**Jean Doyle** comparative politics: China, women in politics, Communist systems of less developed societies.

**Phillip H. Melanson (chairperson)**  
American politics, public policy, empirical theory.

**Rita Moniz** political behavior, quantitative methods, women in politics, group dynamics.

**Robert L. Piper** American political parties, political thought, and government.

**T. Noel Stern** Western political thought, classical political thought, constitutional law, civil liberties.

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## Political Science Major

The Political Science Program offers a variety of courses in American Politics, Comparative Politics, International Relations, Political Theory, State-Local Government, area studies (China, Middle East), Electoral Behavior and Quantitative Methods. The program attempts to provide students with analytical skills and with an understanding of political-administrative processes within a wide variety of political arenas and cultures. These skills and understandings are useful in a broad range of career pursuits and personal developmental goals.

Political Science graduates are currently enrolled in some of the nation's leading law, graduate and professional schools. Others have successfully pursued careers in a variety of areas for which the program's offerings provide a useful and effective background: teaching; corporate management; service in state, local, or federal government administration; careers in social work, urban planning, diplomatic service; careers in practical politics, such as lobbying, campaign management, polling and data analysis. The program



also offers internships and contract-learning opportunities for practical experience. The political science faculty is active in research and government and community service, and publishes many books and articles in their respective fields.

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## Political Science Minor

The Minor in Political Science consists of 21 credits. No more than three courses can be taken from 100 and 200 levels to be applied for Minor credit. Minor course credits must be taken with at least three different professors. Students choosing to Minor in Political Science must achieve at least a 2.5 average in all Political Science courses and a 2.0 cumulative grade point average. Students must formally declare the Minor. Appropriate forms will be available from faculty advisors in the Political Science Department. Students must declare the Minor by the end of their fifth semester and must have completed 54 credits. The nine upper-level course hours must be taken after the Minor has been declared. A research seminar is required of all Minor candidates.

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## Requirements

Political Science Majors are required to take 36 credits. The requirements of the College of Arts and Sciences must also be met. Independent Study and Directed Study are per university policy. No Contract Learning requirements may be applied to fulfillment of the requirements for the major.

PSC 100 Level:

PSC 101	American Politics
PSC 151	Comparative Politics
PSC 161	World Politics

Two of the above courses are required, six credits total.

PSC 200 - 299: Two courses (six credits) required.  
A maximum of three courses (nine credits) may be credited toward fulfillment of the required credits for the major.

PSC 300 - 399: Out of the 30 hours of political science credits required above the 100 level (i.g. 200-level or higher) no more than 21 hours

can be taken in either the American Politics category of courses or in the Global Politics category of courses.

PSC 400 - 499: Research Seminars. One Research seminar is required.

500 Level Honors Program.

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## Political Science Courses

### **PSC 101 3 credits**

#### **Introduction to American Politics**

Theory and practice of national policy-making in Congress, the Presidency, and the Supreme Court, and the interaction of these institutions with interest groups, political parties, public opinion and the mass media.

### **PSC 151 3 credits**

#### **Introduction to Comparative Politics**

Study of political processes, ideologies, constitutional systems and governmental structure of foreign countries including Great Britain, France, Germany, Soviet Union and selected Third World nations. Comparison with American system of government. Stress laid on the use of the analytical method. Formerly PS 102.

### **PSC 161 3 credits**

#### **Introduction to World Politics**

Analysis of the basic concepts and issues of international relations in the contemporary world, with emphasis on the post World War II period. The Cold War in Europe, Asia and Africa is examined in the context of revolutionary transformations. Nationalism, non-alignment and polycentrism are discussed together with their impact on the global struggle.

### **PSC 201-243 3 credits**

#### **American Issues and Ideas**

Issues and ideas courses on selected topics to be developed by instructors as student interest and faculty preference indicate. Students who are not Political Science majors are particularly invited to enroll in such courses.

### **PSC 251-299 3 credits**

#### **World Issues and Ideas**

Issues and ideas courses on selected topics to be developed by instructors as student interest and faculty preference indicate. Students who are not Political Science majors are particularly invited to enroll in such courses.

**PSC 301 3 credits****The Presidency**

The development of the modern presidency and its position within the American constitutional framework is the concern of the course. Special attention will be paid to the presidential selection system. The organization of the office, interbranch relationships and presidential power. Formerly PS 340.

Prerequisite: PSC 101 or permission of the instructor and upper class standing.

**PSC 302 3 credits****The American Legislature**

Congress and the Massachusetts state legislature are the main subjects of this course. Elections, legislative organization, leadership of the legislative party, policy making, interbranch relations and the dynamics of the legislative process are the sub-themes. Formerly PS 309.

Prerequisite: PSC 101 or permission of the instructor and upper class standing.

**PSC 311 3 credits****State Politics**

An exploration of politics and government in the American states. The course is structured by a comparative analysis of politics in the 50 states but the central concern is Massachusetts politics and government. Special attention is given to the relationship between political patterns and such governmental services as education, welfare and urban reconstruction. Formerly PS 300.

Prerequisite: PSC 101 and upper class standing.

**PSC 312 3 credits****Massachusetts Politics**

An analysis of selected aspects of Massachusetts politics and government: the state legislature, electoral trends, parties, courts, and executive policy are potential subject.

Prerequisite: PSC 101 or consent of instructors and upper class standing.

**PSC 313 3 credits****Urban Politics**

A critical examination of the urban political community in the United States. Particular attention is given to the adequacy of the city as an arena of conflict resolution and decision-making as well as such current problems as urban reconstruction in the ghettos. Field research in the area by individuals or groups is encouraged but not required. Formerly PS 311.

Prerequisite: PSC 101 and upper class standing.



**PSC 321 3 credits****Courts, Judges and Politics**

The idea of constitutionalism is the organizing concept in this course, which will examine the constitution-making process, problems associated with constitutional interpretation, higher court decisionmaking, and the impact of higher court decisions. The focus will be on the U.S. Supreme Court primarily.

Prerequisite: PSC 101 or permission of instructor and upper class standing.

**PSC 322 3 credits****Constitutional Law**

Course centers on major constitutional decisions affecting the framework of American government. Supreme Court cases will cover judicial review, due process of law, commerce clause, federal state relations. Also powers of, and limitations on the presidency. Formerly PS 351.

Prerequisite: PS 101 and upper class standing.

**PSC 323 3 credits****Civil Liberties**

This course is in effect the second half of the course on Constitutional Law. The Civil Liberties course deals with the relations between the individual and the state as defined by U.S. Supreme Court decisions. Topics can include: rights of racial minorities, freedom of speech, church-state relations, obscenity laws, rights of conscientious objectors. Formerly PS 354.

Prerequisite: PSC 101 and upper class standing.

**PSC 324 3 credits****American Political Thought**

Development of American political ideas from the colonial period to the present day. Examples of writers who may be covered are: John Cotton, Jefferson, authors of Federalist Papers, Calhoun, Thoreau, Sumner, Veblen and Dewey. Selected Supreme Court opinions will be considered. Formerly PS 301.

Prerequisite: PSC 101 and upper class standing.

**PSC 331 3 credits****Dynamics of Group Politics**

This course focuses on the role of organized groups within the American political system. Special attention is paid to the development and function of political parties and political interest groups. Strategies for lobbying and creating new pressure groups also examined. Formerly PS 303.

Prerequisite: PSC 101 or written permission of instructor and upper class standing.

**PSC 332 3 credits****Sex Roles and Politics**

This course examines the impact of gender as a variable in American politics. It analyzes women as citizens as office holders, and as political participants including participation in political organizations and lobbying strategies. Political issues affecting women are also discussed. Carries credit in women's studies.

Prerequisite: none

**PSC 333 3 credits****Political Behavior**

Examines the political behavior within the American political system. Special emphasis on quantitative methods to examine participation. Original data sets which have provided the sources for assigned readings are supplied. Emphasis on socio-economic models of participation.

Prerequisite: PSC 101 and PSC 349, or written permission of instructor and upper class standing.

**SC 338 3 credits****Woman as Citizen**

This course focuses on the particular role which gender plays in defining citizenship. An important theme for analyzing the citizenship status of women stems from the public/private dilemma. Therefore, the course material will develop a critical analysis of that dilemma, how with corollary concepts defines the citizenship status of contemporary American women. This course explores a range of citizen activities: the "Gender Gap," Women in Public Office and Women Interest Groups. Can also be taken for Women's Studies credit.

**PSC 339 3 credits****Women and Public Policy**

The course is designed to develop an understanding of the public policy process, of how women's issues fare in that process and why, and of the strengths and weaknesses of women as participants in the political process. The course will be taught from the feminist perspective and will thus expand the students' awareness of alternative approaches to political phenomena. Can also be taken for Women's Studies credit.

**PSC 341 3 credits****Public Policy in America**

An examination of the institutions, processes, and arenas which shape the formation and implementation of public policy at the national level, with special attention to major, contemporary policy problems. Formerly PS 315. Prerequisite: PSC 101 and upper class standing.

**PSC 342 3 credits****Public Administration**

Examination of the general nature of the bureaucracy in public and private organization and in various cultural contexts. Attention is given to administrative responsibility. Formerly PS 321.

Prerequisite: Upper class standing.

**PSC 349 3 credits****Quantitative Methods for Political Science**

Introduces the student to basic statistics and their application to data analysis within a Political Science framework. Students also learn computer application by using Statistical Package for the Social Sciences on the University's computer system. Computer work is closely supervised and conducted as a tutorial.

**PSC 351 3 credits****Modern Political Thought**

Course will cover European political thinkers and ideologues since the 18th Century, such as Rousseau, Hegel, Marx, J.S. Mill, Herbert Spencer and Freud. Attention will be given to democratic thought, both capitalist and socialist, to communism, fascism and religiously oriented thought. Formerly PS 302.

Prerequisite: PSC 151 and upper class standing.

**PSC 352 3 credits****Classical Political Thought**

Covers major thinkers prior to the modern age, centering on the political and ideological aspects of their thought. Examples of writers to be covered are: Greek and Roman thinkers, Machiavelli, Reformation leaders and English social contract theorists. The lecture will stress the tie-in between the thought of classical thinkers and modern political ideologies and trends. Formerly PS 401.

Prerequisite: PSC 151 and upper class standing.

**PSC 353 3 credits****Non-Western Political Thought**

A course which comprehends the political philosophy of non-western thinkers whose ideas had a deep impact on the political institutions in lands outside Europe. Emphasis is on Buddhist, Hindu and Muslim thinkers who at different periods of history gave insightful expositions of human nature in politics. Formerly PS 371.

Prerequisite: Upper class standing.



**PSC 361 3 credits****Chinese Government and Politics**

The course will introduce the People's Republic of China and will help develop an understanding of the political process there. It will examine the interrelationships between China's revolutionary heritage and the development of Maoist ideology and mass mobilization politics, economic policy, and foreign policy. Finally, it will examine post-Mao politics to determine the degree and direction of change and its implication for Chinese politics and for the Chinese people.

Prerequisite: PSC 151 and upper class standing.

**PSC 362 3 credits****Comparative Communist Systems**

Analysis of similarities and differences among Communist states — Cuba, China, the Soviet Union, and Eastern Europe. Emphasis will be on the internal dynamics of change and the effects of ideological and organizational factors on Communist bloc relations, especially the Sino-Soviet dispute. Formerly PS 318.

Prerequisite: PS 151 or consent of instructor. Upper class standing.

**PSC 363 3 credits****Politics and Government of the Middle East**

A study of the politics of the Middle East in terms of the region's history, geography, culture and the impact of the West. Country studies include Turkey, Egypt, Syria, Israel, Jordan, Iraq, Saudi Arabia, and other Gulf States. Formerly PS 332.

Prerequisite: Upper class standing.

**PSC 364 3 credits****Politics and Government of South Asia**

The course is a study of certain important systems in South Asia and Southeast Asia. The countries included are India, Pakistan, Malaysia, and Philippines. Topics included for discussion are constitutional framework, political process, and salient characteristics of the political culture as a whole. Formerly PS 339.

**PSC 372 3 credits****Revolutionary Change**

Revolution is treated as a special category of social change. The course deals with a comparative analysis of the determinants of revolutionary change in selected areas in Latin America, Africa, the Middle East, and Southeast Asia. Formerly PS 336.

Prerequisite: Upper class standing.

**PSC 381 3 credits****Contemporary International Relations**

Problems in international relations with emphasis on changing characteristics of contemporary world politics. Attention is given to super-power politics and accommodations (detente) in Europe, East Asia, the Middle East, and Africa, and the problems associated with the emergence of a new world order.

Prerequisite: PSC 161.

**PSC 382 3 credits****American Foreign Policy**

A study of the substance and formulation of American policies in world politics. Attention is given to the changing role of the United States in world politics, and the varying constitutional, administrative and political considerations which have effected changes in American foreign policy since World War II. Formerly PS 343.

Prerequisite: PSC 161 and upper class standing.

**PSC 383 3 credits****The Politics of International Economic Relations**

The course will examine the political origins and impact of international economic issues on both the industrialized and less developed countries. Among the topics to be considered are the politics of the structural aspects of the international political economy (trade, monetary policy, tariff policy, regionalism), institutional aspects (multinational corporations, international lending institutions, aid-giving), and North-South relations and resource distribution. Specific case studies such as global food or energy politics will be used where appropriate.

Prerequisite: PSC 161 or PSC 361 and upper class standing.

**PSC 384 3 credits****International Law and Organization**

The course provides insight into all the major dynamics of international law, state succession, recognition, treaties, diplomacy, settlement of international disputes, and international organization (such as the League of Nations and the United Nations).

**PSC 391 3 credits****Comparative Public Administration**

Comparative study and analysis of the public service system in selected countries in the U.S., Europe, and Asia. Topics include recruitment, selection, promotion, policy making role and social background of the higher civil servants. Formerly PS 327.

Prerequisite: Permission of instructor or upper class standing.

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**PSC 400-444 Seminars in American Politics and Ideas**

Formerly PS 380-398, PS 391, 392, PS 492.

**PSC 445-455 Directed Study, Independent Study, Contract Learning**

Formerly PS 399-400.

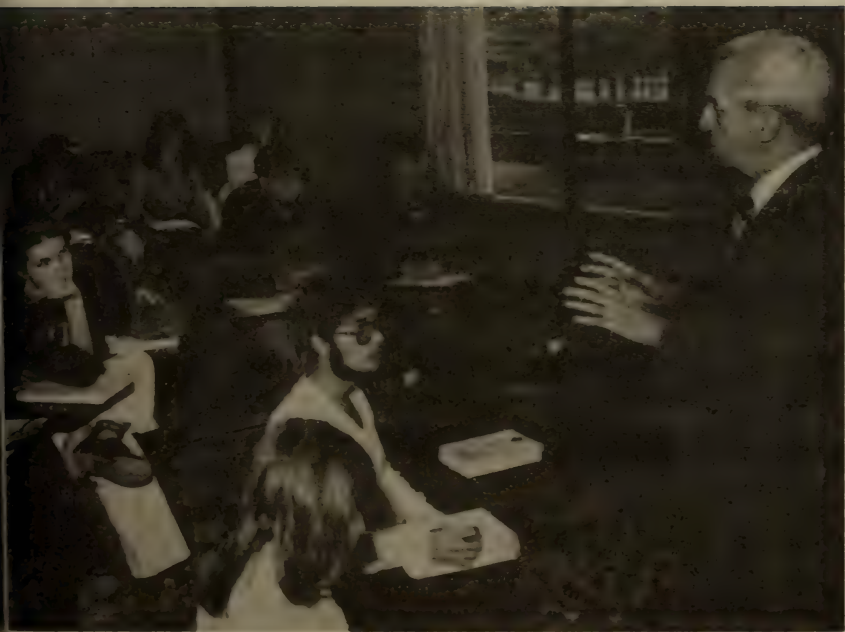
**PSC 456-498 Seminars in World Politics and Ideas.**

Formerly PS 380-398, PS 391-392, PS 492.

**PSC 499 Honors Seminar**

**PSC 900 Contract Learning**





## **Pre-Medical Advisory Committee**

A Faculty Pre-Medical Advisory Committee assists all pre-medical (pre-medical, pre-dental, pre-veterinary, pre-paramedical) students in their pursuit of admission to a professional school.

The committee meets once each semester with each student who declares himself or herself a pre-med. The committee reviews the student's program and progress and makes recommendations.

The committee serves as the principal source of advice in course selection for the pre-medical program.

The committee actively seeks up-to-date information about medical school admission requirements and makes direct contact with the medical schools whenever possible.

The committee prepares letters of recommendation going to the medical schools.

The committee serves in association with the Student Pre-Medical Association. In addition to its other functions, the student association serves as a principal determiner of who the pre-meds are and puts the students in contact with the faculty committee.

Any student who deems himself or herself a pre-med should either contact the Student Pre-Medical Association or a member of the Faculty Pre-Medical Advisory Committee.

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## Faculty and Fields of Interest

**Lynn Tondat Carter** physiological psychology and recovery following neural damage.

**John Caruso** human learning and applications to instruction

**Victor Caliri** counseling and organizational psychology, humanistic and health psychology

**Julle Cleare** clinical and developmental psychology

**Donald Corriveau** clinical research and behavioral medicine

**Paul Donnelly** counseling psychology, treatment of adolescent and criminal offenders

**Morton Elfenfein** social psychology and group behavior

**Barry Halmson** Psycho-physiology and perception

**William Holt** child psychology and learning theory

**Robert Pallatroni** clinical psychology and behavior disorders

**James Riley (chairperson)** behavior modification and community psychology

**Judith Sims-Knight** cognitive and developmental psychology

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## Psychology Major

Students who major in psychology find primary employment opportunities in personnel management, secondary and elementary school education, social work, and as aides in mental health establishments. Higher level psychological activities, such as counseling psycho-therapy, university instruction, psychological research and various administrative mental health positions generally require a master's degree or preferably a doctorate in psychology. All psychology majors are required to complete successfully General Psychology (PY 101), Statistics (PY 205) and Experimental Methods (PY 210). In addition twenty-one credits must be taken among the four areas listed in the requirements section. Students should plan to complete General, Statistics, Methods and their choice from Area A (Child, Adolescent, or Educational psychology) by the end of their sophomore year. This system is designed for the student who wishes to obtain a broad liberal education in the field.



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## Requirements

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Psychology majors must fulfill the following requirements:

Required Courses			Credits:
PY	101	General Psychology	3
PY	205	Statistics for Psychology	4
PY	210	Experimental Methods	4

### Area Requirements

A. Choose one (1) of the following courses:

PY	201	Child Psychology	3
PY	215	Adolescent Psychology	3
PY	220	Educational Psychology	3

B. Choose two (2) of the following courses:

**Total of 6 credits.**

PY	202	Abnormal Psychology
PY	204	Social Psychology
PY	302	Psychological Testing

C. Choose two (2) of the following courses:

**Total of 6 credits.**

PY	305	Physiological Psychology
PY	303	Psychology of Learning
PY	320	Psychology of Perception

D. Choose at least two (2) upper-level  
(300 or 400-level) courses —

**Total of 6 credits.**

**Minimum total credits for major:**

**32 credits.**

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## **Psychology Courses**

### **PY 101 3 credits**

#### **General Psychology**

Introduction to the systematic study of behavior to serve as a self-contained survey and as a foundation for advanced work in psychology and related fields. Topics will include development, learning, perception, biological bases, intelligence, and personality.

### **PY 201 3 credits**

#### **Child Psychology**

A study of the child from both the developmental and experimental approaches. Topics which may be included are: methodology in child research, heredity and environment controversy, intelligence, language and communication, learning in infancy and childhood, and motor, cognitive, perceptual, personality and social development. Prerequisite: PY 101.

### **PY 202 3 credits**

#### **Abnormal Psychology**

Study of development and characteristics of behavior disorders. Topics to be considered include: cause of abnormal behavior, transient personality reaction to acute or special stresses, psychoneurotic disorders, and therapeutic measures.

Prerequisite: PY 101

### **PY 203 3 credits**

#### **Psychology of Adjustment**

A study of all sides of the complex problems of mental health and mental illness. The emphasis is on psychosocial models rather than medical disease models. Psychoanalytic and behavioral approaches are contrasted with humanist-existential concepts. Note that this course does not count toward requirements for psychology major.

Prerequisite: PY 101

### **PY 204 3 credits**

#### **Social Psychology**

The study of experimental findings, theoretical and methodological issues in understanding the individual in a social context.

Prerequisite: PY 101

**PY 205 4 credits**

**Statistics for Psychology**

An introduction to analysis of quantitative data in psychology, including probability, descriptive statistics, correlation and regression, analysis of variance and data analysis by computer.

Prerequisite: PY 101

**PY 210 4 credits**

**Experimental Methods**

An introduction to the design, administration and analysis of psychology experiments, including computer applications. Emphasis also on evaluation of research and scientific report writing.

Prerequisite: PY 101, 205

**PY 215 3 credits**

**Adolescent Psychology**

A survey of theories of adolescent personality development, psychopathology and current issues in the field.

Prerequisite: PY 101

**PY 220 3 credits**

**Educational Psychology**

Exploration of the relationships between basic psychological principles and their application to instructional environments.

Prerequisite: PY 101

**PY 302 3 credits**

**Psychological Testing**

An introduction to basic principles and techniques of psychological testing, and a study of the major types of tests.

Prerequisite: PY 101, PY 205

**PY 303 3 credits**

**Psychology of Learning**

A survey of learning principles from simple conditioning to complex creative behavior.

Prerequisite: PY 101, PY 205, PY 210

**PY 305 3 credits**

**Physiological Psychology**

The study of the physiological basis of behavior. An emphasis on the neurological and hormonal factors underlying sensation, perception, motivation, emotion and learning.

Prerequisite: PY 101, PY 205, PY 210



**PY 310 3 credits****Analysis of Data**

Stress on advanced statistical analysis for the social sciences together with a practical minimum of APL computer skills.

Prerequisite: PY 101, PY 205, PY 210

**PY 320 3 credits****Psychology of Perception**

An overview of research methods and results in the area of perception.

Special emphasis on role of stimulus variables and attention on the perceptual constancies, color, size, form and space perception.

Prerequisite: PY 101, PY 205, PY 210 (may be taken concurrently).

**PY 330 3 credits****Personality Theory**

Study of personality structure and development through analysis of the theoretical contributions of major personologists.

Prerequisite: PY 101, PY 202, junior or senior psychology major.

**PY 332 3 credits****Seminar in Comparative Psychology**

Study of genetic environmental influences on the development and evolution of animal behavior.

Prerequisite: PY 101, PY 205, PY 210

**PY 350 3 credits Psychology of the Exceptional Child** A theoretical and practical analysis of exceptional intellectual, emotional or physical behavior in children.

Prerequisite: PY 101, PY 201

**PY 370 3 credits****Group Dynamics**

This course is designed to familiarize the student with group dynamics as both an experiential activity and an empirical science. Includes sensitivity training group.

Prerequisite: PY 101, PY 204, senior psychology major or consent of instructor.

**PY 375 3 credits****Psychology of Sex Differences**

This course is designed to stimulate discussion among men as well as women, by exploring topics such as the development of sex differences, socialization practices, attitudes, values and role expectations which affect the self-concept and interpersonal relationships.

Prerequisite: PY 101, PY 205, PY 210

**PY 380 3 credits****Advanced Laboratory in Social Psychology**

An emphasis on social psychology as an experimental science focusing on the issues of methodology, design of experiments, manipulation of social variables, the ethics of experimentation, and the presentation of research findings.

Prerequisite: PY 101, PY 204, PY 205, PY 210

**PY 402 3 credits****Theories of Learning**

A comparative study of the history and current status of the major theories and models of learning.

Prerequisite: PY 101, PY 205 PY 210, PY 303

**PY 404 3 credits****History of Psychology**

A survey of the history of psychology within the context of the major theoretical systems developed within the field since the emergence of psychology as an experimental science.

Prerequisite: PY 101, and any two of the following: PY 220, PY 303, PY 320, PY 305, PY 434, PY 418

**PY 406 3 credits****Counseling I**

Introduction to philosophies, theories and techniques of counseling, and demonstrations of various psychotherapeutic methods.

Prerequisite: PY 101, PY 202, PY 330. Senior psychology major only and/or permission of instructor.

**PY 407 3 credits****Counseling II**

Continuation of PY 406, plus tape experiences and some supervised practicum experiences.

Prerequisite: PY 406, and permission of instructor

**PY 409 3 credits****Community Psychology**

A survey of the theories, techniques, and goals of community psychology, particularly as they relate to the community mental health movement.

Prerequisite: PY 101, and any three of the following: PY 201, PY 202, PY 215, PY 330, PY 406

**PY 414 3 credits**

**Advanced Child Lab**

After a general introduction to the field of clinical psychology students study techniques of establishing rapport with children; interviewing, test administration, scoring, and interpretation; and report writing.

Prerequisite: PY 101, PY 201, PY 205, PY 210, PY 302



## Faculty and Fields of Interest

**Roberta Hazen Aaronson** social work, grassroots community organizing, social policy

**John Bush** research design, complex organizations, Black Identity, Human Sexuality

**Geraldine Gamburd** social anthropology, myth and ritual, South Asia, egalitarian and cooperative community alternatives

**Jane Hillowitz** American society, European society, social change

**Toby Huff** Sociology of religion, personality and culture, theory

**Donna Huse** social psychology, community psychology, peer counseling

**Yale Magrass** social theory, sociology of knowledge, historical and political sociology, social change, social problems, social psychology, methodology

**Donald McKinley** sociology of education and knowledge, family and kinship, mass society

**Larry Miller** political sociology, sociology of class, social theory, sociology of art and literature

**Tom Ranuga** third world studies: Africa, Caribbean and South America

**R. Penn Reeve** anthropology, race and ethnicity, social inequality, Brazil, U.S.

**Edward Ryan** methodology, field studies, Eastern and Southeastern Asia, linguistics, socio-cultural change

**Gene Sharp** social thought, conflict and war, social movements and revolution, political sociology

**Jack Stauder** anthropology, political economy, social movements, Third World

**Virgilio Zanin (chairperson)** sociology of deviant behavior, criminology, sociology of law

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## Sociology Major

The department's major focus is the study of human beings and the analysis of collective action and the socio-cultural settings in which it occurs. The department offers courses in sociology, anthropology, social work and a number of courses that are primarily interdisciplinary in nature. Sociology is the study of social behavior in its different forms. It is the study of whole societies and their basic institutions (e.g. religion). It also studies human groups on a smaller scale such as the family, peer group, and neighborhood.

Anthropology and sociology overlap somewhat though an anthropologist is more likely to study non-western societies and to emphasize somewhat more the biological base of human behavior, human evolution and a society's ethos. Social work is the application of concepts from disciplines such as: sociology, psychology, and anthropology to an area of concern in modern society. Social work and social action growing out of the basic disciplines (above) increasingly attempt not only to study and treat but create new social realities.

A major in this department may be chosen for the inherent satisfaction the knowledge provides. It also may be the foundation for social action or for graduate work in a basic discipline.

Those courses listed "SO or AN" are courses that bridge the fields of sociology and anthropology. Students may elect to gain credit in either field by registering in the course and selecting either prefix. Anthropology credits can be counted toward a sociology major.

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## Requirements

Majors are required to take 30 credits in the department.

SO 101 or AN 111 or SO 113/AN 113	3
SO 206 or SO 401	3
SO 200 or AN 208 or SO 402 or AN 405	3
Electives in Sociology or Anthropology	21

**Semester Credits: 30**

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## **Anthropology Minor**

A Minor is offered with the following requirements: completion of at least 18 credits of which 9 must be at the upper division level. Specifically, they will include Introduction to Cultural Anthropology (AN 111), either Intro to Physical Anthropology (AN 110) or Intro to Archaeology (AN 261), Introduction to Anthropological Theory (AN 208) or Anthropological Theory (AN 405), and three additional upper level courses listed as Sociology/Anthropology or Anthropology.

Furthermore, a student can request entrance to the Minor program in Anthropology after completing at least 54 credits with a cumulative grade point average of 2.0 and with a 2.5 grade point average in his/her major. Requests must be approved by the chairperson of the Sociology/Anthropology Department.

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## **Sociology Minor**

The Department offers a Minor in Sociology with the following requirements: Completion of at least 18 credits, of which 9 must be at the upper division level. Three courses (as in the major) will be taken which include Introductory level courses (SO 101, AN 111, or SO/AN 113), a theory course (SO 200, AN 208, SO 402, or AN 405), and a methods course (SO 206 or SO 401), plus three upper division Sociology or Anthropology courses. All Anthropology courses can count for the Sociology minor, as they do for the major.

Furthermore, a student can request entrance to the Minor program in sociology after completing at least 54 credits with a cumulative grade point average of 2.0 and with at least a 2.5 grade point average in his/her major. Requests must be approved by the chairperson of the Sociology/Anthropology Department.



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## Sociology and Anthropology Requirements

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### Core Courses

SO	318	Justice and Society
PI	326	Philosophy of Law
SO	334	Theory and Explanation
SO	312	Deviant Behavior
SO	331	Race and Ethnicity
PY	406	Counseling
SO	400	Special Topics: Probation, Parole, and the Social Service System
PSC	349	The Computer and Data Analysis
PSC	339	Women and the Public Policy Agenda or SO 235 Women and Social Policy
SO	450	Internship

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 30 credits
 

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### Electives (4 required)

PI	215	Ethics
PY	202	Abnormal Psychology
PSC	339	Women and the Law
PSC	323	Civil Liberties
PSC	321	Courts, Judges, and Politics
SO	342	Organization of Criminal Behavior
HI	337	English Constitutional History
SO	400	Special Topics
EC	343	Economics of Sex and Race Discrimination

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 Total of 42 credits.
 

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## Program in Criminal Justice

The program in Criminal Justice at SMU is an interdisciplinary concentration grounded in the liberal arts tradition. It draws on the full range of the University's resources to give students of this area new opportunities to combine a university education with enhanced avenues for career advancement and public service. It is designed to give individuals specializing in Criminal Justice and/or corrections a broadly-based university education. In general, it assumes that the student enrolling in the program has already earned an Associate's Degree in Criminal Justice, either at one of the community colleges, or elsewhere. Students wishing to choose this option should consult a faculty advisor in the Department of Sociology and Anthropology.

In addition to providing a university education for students who aspire to service in the criminal justice system, SMU's program seeks to foster an understanding of the role of criminal justice systems in democratic societies. The intent of the training is to study the whole range of criminal justice activities and agencies which extend from the commission of criminal acts, the police and the courts, to probation, parole, and the social service system. Efforts have also been made to incorporate comparative and historical perspectives which focus on the processes which give rise to legal and extra-legal activities and result in their being so labelled. Courses in counseling, as well as probation and parole, will form an integral part of the program.

All "pre-service" students will be required to take a one semester internship. The student will be placed in a relevant position in the criminal justice system, such as a parole office, court, or correctional institution, and his/her experience will be supervised by an SMU faculty member.

It is assumed that students entering the program will already have an Associate's Degree in Criminal Justice.

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## Recommended Course Sequence

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### Junior Year

SO	318	Justice & Society
SO	312	Deviant Behavior
SO	331	Race & Ethnicity
PH		Sci. Tech. Society
		Natural Science Elective
SO	334	Theory & Explanation
PY	202	Abnormal Psychology
PSC	339	Women & Public Policy
PI	326	Philosophy of Law
		Natural Science Elective

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### Senior Year

PSC	349	Computer & Data Analysis
PY	406	Counseling
PSC	323	Civil Liberties
ML		Modern Language
		Elective
SO	400	Special Topics
SO	343	Organ. Crim Behavior
PSC	321	Courts, Judges & Politics
SO	450	Internship
ML		Modern Language

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## **Sociology and Anthropology Courses**

### **SO 101 3 credits**

#### **Introduction to Sociology**

A survey of the fundamental principles of sociology and the basic factors conditioning social behavior.

### **SO 102 3 credits**

#### **Social Problems**

A survey of the various social problems in the contemporary world. Special emphasis will be placed upon analysis of social problems in American society.

### **AN 110 3 credits**

#### **Introduction to Physical Anthropology**

A survey of the fundamental concepts of the science of man. This course concentrates upon the physical evolution of man, the comparison of the behavior of currently existing primates, and interdisciplinary searches into topical questions such as the evolution and nature of aggression and/or hierarchy and dominance.

### **AN 111 3 credits**

#### **Introduction to Cultural Anthropology**

An introduction to the basic concepts of social and cultural anthropology. Readings emphasize the comparative study of societies at different levels of socio-cultural integration and from different areas of the world. This may include a brief introduction to physical anthropology and archaeology.

### **SO 113 or AN 113 3 credits**

#### **Introduction to Social and Cultural Behavior**

This course offers a combined introduction to Anthropology and Sociology, useful both for those who do not have the occasion to take an introductory course in each field, and for those who want a general overview to help them decide to which upper-level courses to proceed.

### **SO 200 3 credits**

#### **Introduction to Sociological Thought**

An introduction to the enterprise of sociological theory. As such, it attempts to introduce students to the questions, problems and intellectual tasks of theorizing about society and our social lives as well as to expose students to some of the most important competing ways in which previous social theorists have gone about this task.

Prerequisite: SO 101



**SO 202 3 credits****Social Psychology**

This course explores some of the fundamental questions of social psychology — what is a human being? what are human relations? what is a group? — from the social perspective generated by psychoanalytic theory. The focus is on the relation of the individual to the group when both are in the process of transformation. Readings from various social psychologists.

**SO 203 3 credits****Social Work I**

This course will provide students with a theoretical framework for understanding the role of the social services in our society. The knowledge, values, and skills that underlie social work practice will also be examined. Prerequisite: SO 101 or 102

**SO 204 or AN 204 3 credits****The American Indian**

A brief review of the prehistory of man in the Americas. A study of the people and cultures of America before the arrival of Europeans. The interaction between various Indian groups and different European forces. Historical and social outcomes of that interaction. A focus on the status of Indian groups in the United States in recent times.

**SO 205 3 credits****Industrial Society and Human Problems**

A discussion of the values of modern society; of the structure of factory and bureaucracy. An analysis of the fragmentation of the community and of personal stress as effects of a complex society. Deviant and countercultural responses to industrial society and its power structure.

Prerequisite: A social science course.

**SO 206 3 credits****Introduction to Research Methods**

An introduction to the concepts and methodology of social science research; a requirement for SO/AN majors.

Prerequisite: SO 101 or AN 111 or SO/AN 113

**AN 208 3 credits****Introduction to Anthropological Theory**

A historical analytical and current review of the anthropological perspective. A study of several themes basic to anthropological thinking including comparison, holism, systems and processes, folk versus analytical perspectives, and case studies. The systematic nature of anthropological inquiry with testing of findings, theories, laws, generalizations and modes of research and interpretation will be noted in the reading of original sources.

Prerequisite: AN 111

**SO 210 or AN 210 3 credits****Culture and Personality**

An analysis of personality development with particular stress upon the cultural determinants of identity, character and motivation. The thesis of national character formation as well as sociocultural variations in psychopathology and normalcy will be examined.

Prerequisite: SO 101 or SO 113 or AN 111 and PY 101

**SO 212 3 credits****American Culture and Education**

A discussion of the nature and origins of the values of the industrial west, especially America. The origins of higher education and the sciences and their emergence as the leaders in the development of those values. The interaction between society and the educational systems and resulting social trends. The internal structure of the educational institutions and their function in modern society; the role of the behavioral sciences in a "post-industrial" society and into higher learning.

Prerequisite: One course in a Social Science or Education

**SO 220 3 credits****Social Change**

Analysis of patterns and processes of social and cultural change. Examination of the role of science, technology and religion in the shaping of social and economic structures and processes. Attention will be given to the role of social movements in contemporary and historical cases of sociocultural change.

Prerequisite: SO 101

**AN 221 3 credits****Premodern Social Systems**

A study of social order and disorder. Description of elementary forms of kinship using several ethnographies of people around the world. The analysis of social structures including features of opposition as well as those of order and complementarity.

Prerequisite: AN 111 or SO 113 or AN 113

**SO 226 or AN 226 3 credits****Sociology of Africa**

A survey of change and conflict in African society, historically and at present. Particular attention will be paid to the effects of colonialism and African resistance to it.

Prerequisite: None

**SO 227 or AN 227 3 credits****Cultural Evolution**

The evolution of human societies from prehistoric to modern times. Focus will be the interaction between the development of technological forces and changes in social relations and institutions.

Prerequisite: SO 101 or AN 111 or SO 113 or AN 113

**SO 228 3 credits****Sex Roles and Sexuality in American Society**

This course will study the changing definitions of the roles of men and women in American Society as we perceive it from our experience and from a social, historical, biological perspective. Class sessions will include the following: the development of male and female in the evolutionary system; human sexuality; cross-cultural sexual identities; images of male and female in American literature, movies and the popular imagination; socialization and the development of sexual identity; problems of courtship and intimacy.

Prerequisite: Permission of instructor

**SO 230 3 credits****Black Identity and the Social World**

This course is especially designed for black students and white students who are concerned with black heritage. Considerable time will be spent in studying the heritage of black people. We will examine the African past through literature, etc., examine the survival techniques which blacks developed in order to survive in an alien world, and carefully analyze the collective identity of black people at the present time in history.

Prerequisite: None

**SO 232 or AN 232 3 credits****Portuguese in the Americas**

A sociological examination of the Portuguese experience in the U.S. and Brazil with focus on immigration, interethnic relations, problems of adjustment and opportunities in the two countries.

**SO 240 3 credits****Dynamics of Community Organization**

This course will provide students with an analysis of the theory and practice of community organizing with particular emphasis on the development of social action and community development techniques on the grass-roots level. This course will be conducted as a seminar with student participation in class discussions to be the major vehicle for the exchange and development of ideas. In addition, mini-lectures, field simulations, role-playing, guest speakers and field observations will be utilized.



**SO 248 or AN 248 3 credits****Alternative Communities in Industrial Society**

This course encourages thought about the quality of experience in advanced industrial society and alternatives for regaining control over our life choices and livelihood. The technological alternatives to mass production are considered, and egalitarian communities in which members jointly control decisions through participation in local economies, politics and technology are studied.

**SO 251 3 credits****Group Processes**

The class will present a theory of human potential, distress, and recovery, which is concerned with how to reevaluate one's experience and life history from a powerful positive perspective. The class will use new rules of communication which allow equal time for everyone participating, stress the necessity both of sympathetic attention and spontaneous self-expression, and emphasize ways of communicating feelings that are repressed in everyday social relations.

Prerequisite: Permission of instructor required. Interview with student required.

**SO 252 3 credits****Analyzing Racism in America**

This course reviews protest movements and the role individuals, more particularly, Blacks, played in battling oppression and injustice.

Prerequisite: SO 101

**SO 253 3 credits****Urban Sociology**

An ecological and social psychological analysis of urban life in the United States. Urban institutions and their social relations with the urban community are given special attention.

Prerequisite: SO 101

**SO 255 or AN 255 3 credits****Peoples and Cultures of Europe**

An examination of selected societies of Europe from an anthropological perspective, with special attention paid to rural-urban relations and to processes of transformation and development. An attempt will also be made to account for the similarities and differences of the peoples and societies studied.

Prerequisite: SO 101 or AN 111 or SO 113 or AN 113

**SO 257 3 credits****Comparative Group Processes**

Communication in this class will be based on a different set of rules for group interaction than those which characterize most groups in this society. The goal of the class is to create a group based on the following principles: democratic communication, validation or communication, emotional expressiveness, sympathetic attention and rational reevaluation. The experience of this group will enable a comparison with the assumptions and values implicit in "normal" social interactions.

Prerequisite: Permission of instructor

**AN 261 3 credits****Introduction to Archaeology I**

An introduction to the principles of method and theory of modern American archaeology.

**AN 262 3 credits****Introduction to Archaeology II**

An introduction to archaeological documentation of prehistoric socio-political organization. Emphasis on the development of state levels of social organization in an evolutionary perspective.

**SO 301 3 credits****The Sociology of Work**

The study of the social organization of work in past and contemporary societies. Particular attention will be paid to the growth and consequences of the division of labor in society, including our own society.

Prerequisite: SO 101 or AN 111 or SO 113 or AN 113

**SO 302 3 credits****The Sociology of Art I**

The relationship between society and art and artists. Various problems will be taken up concerning the recruitment and careers of artists and the effects that these have had on their artistic work.

Prerequisite: either SO 101, SO 111, SO 113 or AN 113, History of Art or permission of instructor.

**SO 303 or AN 303 3 credits****Family and Kinship: An Interdisciplinary Approach**

A study of the functions and stresses of the family in complex society. A comparison of family behavior in folk and urban cultures, a study of bio-social life (erotic behavior, child care and death) using the perspectives of several disciplines — psychoanalysis, sociology, and anthropology. Speculations on the future of the family.

Prerequisite: A social science course.

**SO 304 or AN 304 3 credits****Third World Development**

A study of the "Third World" — its political economy and roots in world history and international relations. Focus on understanding the sources of underdevelopment and the possibilities for development.

Prerequisite: SO 101, 111 or 113

**SO 305 3 credits****Political Sociology**

An exploration of sociological perspectives on the study of power relationships, political communities, political processes and institutions.

Prerequisites: SO 101, SO 113 or AN 113, PS 101, 102 or permission of instructor.

**SO 307 3 credits****Sociology of Conflict and War**

An exploration of theories that humans are by nature aggressive or cooperative beings, of the nature, sources and dynamics of social conflict generally and war in particular, and of possible alternatives to war.

Prerequisite: SO 101 or permission of instructor.

**SO 308 3 credits****Sociology of Religion**

Comparative sociological analysis of religious movements in industrial and non-industrial societies. Examination of the interplay between religion and social structure. Discussion of the church-sect typology and the institutionalizing of religious belief systems. Consideration will also be given to the influence of religious creeds upon patterns of thought and action and on sociocultural change.

Prerequisite: SO 101 or SO 113 or AN 113 and upperclass status.

**SO 309 or AN 309 3 credits****Readings in Sociological and Anthropological Literature**

This course is designed for students who would like to do reading and writing on specific sociological and anthropological topics normally not included in the curriculum. Students will work on these topics under the close supervision of individual instructors.

Prerequisite: Junior or senior standing. Students are limited to one such reading course per semester.

**SO 310 3 credits****Social Movements I**

A sociological analysis of the origin and development of social movements with an emphasis on detailed study of particular social movements.

Prerequisite: SO 101 or permission of instructor.



**SO 311 3 credits****Social Movements II**

A continuation of Social Movements I with the exploration of additional case histories.

Prerequisite: SO 310

**SO 312 3 credits****Deviant Behavior**

Review of theory and research with emphasis on their implications for a general theory of deviant behavior. Sociological knowledge will be applied to the analysis of selected topics such as: organized crime, drug addiction, etc. Social factors and influences in deviant conduct are given heavy stress. Sociological analysis of the agencies of control will be included.

Prerequisite: SO 101, Juniors and Seniors

**SO 314 3 credits****Complex Organizations**

This course is specifically concerned with the workings of large formal organizations such as universities, hospitals, prisons, government organizations, etc. Attention will be given to the social interactions within the organizations, and especially how organizations maximize efficiency given their bureaucracy structures.

Prerequisite: SO 101

**SO 318 3 credits****Justice and Society**

An introduction to the wider cultural and legal contexts of the criminal justice system. The course draws on the sociology of law and the police, as well as the functioning of the courts in order to understand the concept of law, the notion of the "rule of law", due process, and the role of constraint in law enforcement in a democratic society.

Prerequisites: SO 101 or equivalent and junior status or permission of instructor.

**SO 319 3 credits****Philosophy of Social Science**

This course explores the philosophical underpinnings of science and "sciening," first in the natural sciences and then in the social sciences. The ideas of "facts," "laws," "theories," and "hypotheses" are explained in a philosophically rigorous form, leading to further questions such as, can a "scientific truth" ever be found to be "wrong"? Case studies of scientific explanation and advance from the history of the social and natural sciences are studied. Thus, an effort is made to understand when "science" is supposed to mean in the natural sciences and then comparison and exploration of the same issues in the social sciences is carried out.

Prerequisite: SO 101 or 113 and one advanced SO course

**SO 320 or AN 320 3 credits****Junior Seminar**

Students will discuss and write papers on aspects of a subject chosen for the semester.

Prerequisite: For juniors only. Permission of instructor required.

**SO 321 or AN 321 3 credits****Comparative Sociology of the Community**

Man everywhere lives in localized clusters. These "communities" vary in seemingly myriad ways: the life goals they define; social organization; homogeneity; size; fixity of location; political, economic, and cultural relations with the outside world; etc. Each is at once a mode of adaptation to the natural environment and constitutive of a particular sociocultural milieu. The course will examine various "community" forms with the aim of clarifying the nature of village, town and city forms in American society.

Prerequisite: Introduction to Sociology or Anthropology

**SO 322 3 credits****Political Sociology of Nonviolent Conflict**

An examination of the sociopolitical techniques of nonviolent action (protest, noncooperation and intervention), including its power theory, historical development, dynamics, mechanisms, and application in social conflicts.

Prerequisite: SO 101, AN 111 or SO 113 or AN 113

**SO 323 3 credits****Seminar in Non-violent Conflict**

Advanced seminar in the subject indicated by the title.

Prerequisite: SO 322

**SO 324 or AN 324 3 credits****Women in Contemporary Society**

Using an historical and comparative approach, this course examines the roles and status of women in contemporary societies. The course integrates theory of sexual inequality and its relation to other forms of social inequality and empirical analysis of the actual conditions of women.

Women's participation in social movements in the U.S. and Third World countries is addressed as part of the analysis of the changing roles and statuses of women.

**SO 326 3 credits****Wealth, Status, and Power in America**

The study of the various ways in which different societies assign their members to higher and lower positions of prestige, power and possessions.

A sociological analysis of the ways in which a person's stratified rank influences his personality and life-opportunities in society.

**AN 327 3 credits****Myth and Ritual**

Exploration of the significance of myth and ritual and the history of its study. Myths and rituals of a world wide sample are analyzed from functional, structural and symbolic points of view.

Prerequisite: AN 111 or 113

**SO 328 or AN 328 3 credits****Cultural Ecology**

The study of culture and society from an anthropological and ecological approach, focusing on the interaction between human societies and their natural environment.

**AN 330 3 credits****Peoples of South Asia**

This course will introduce students to the variety of social systems found in South Asia, including India, Pakistan, Tibet, Nepal and Ceylon. The contrasts between wheat and rice farming areas; tribal and peasant societies, and highland and lowland peoples will be examined. The effects of industrialization will be considered. The value systems of Buddhism and Hinduism will be introduced briefly.

Prerequisite: An 111 or SO 113 or AN 113

**SO 331 3 credits****Race and Ethnicity**

A study of the concepts of "race" and "ethnic group" and the role these concepts play in social interaction and social differentiation.

Prerequisite: SO 101 or 111 or 113

**SO 332 3 credits****Sociology of Revolution**

An examination of the phenomenon of mass popular revolutions, utilizing theoretical and analytical writings and case studies. Attention will be given to the social conditions in which revolutions occur, their objectives, dynamics of the revolutionary process, changes in power distribution, alternative techniques of revolutionary action, and on social consequences.

Prerequisite: SO 101 or AN 111 or 113 or permission of instructor.

**AN 332 3 credits****Introduction to American Prehistory**

A survey of the archaeology of the New World from the earliest evidence for humans in North and South America to the historic European contact.



**SO 334 3 credits****Theory and Explanation**

A review and analysis of the principle forms of explanation in the social sciences with particular focus on both "structural" and individualistic forms of explanation. Attention will also be directed to the role of "reasons" and "motives" in sociological explanation, as well as Hart and Honore's work on causation in the law. Both deviant and non-deviant forms of behavior will be studied.

Prerequisites: SO 101 or equivalent and upperclass standing

**SO 335 3 credits****Social Policy**

This course will provide students with an analysis of the relationship between social needs and societal response with an examination of the effectiveness of current policies in meeting human needs. The policies selected for analysis will be programs and provisions directed toward a specific population, i.e. elderly, women, etc. The policies to be studied will focus on a particular substantive area and may change with each semester that the course is offered.

Prerequisites: SO 101 or SO 203

**SO 337 or AN 337 3 credits****Comparative Ethnic Relations**

A comparative analysis of interracial and interethnic relations in various areas of the world including the U.S., Latin America, Africa, and Europe. An examination of the causes of interethnic conflict, assimilation, ethnic solidarity, and changes in ethnic identity.

**SO 340 3 credits****Law and Society**

Investigation of problems in the sociology of law, including lawmaking processes; administration of justice and correctional systems. Comparative analysis of legal systems and their administration.

**SO 341 or AN 341 3 credits****Language In Society**

The nature of language; theories of meaning; the relation of language to interpersonal interaction, social systems, and systems of belief and value. Only a minimum of phonological and syntactical analysis theme of the course will be introduced.

Prerequisites: SO 101 or AN 111 or SO/AN 113

**SO 342 3 credits****Organization of Criminal Behavior**

A survey of major theories in sociology of crime and delinquencies. The theories include those of Durkheim, Lombroso, Freud, Merton, Sutherland, and others. This course analyzes institutionalized societal responses to crime in terms of policies relating to arrest, the judicial process, and correctional institutions.

**SO 345 or AN 345 3 credits****Human Evolution**

Human Evolution is a systematic and multidisciplinary approach to the origin and evolution of the human species from its primate ancestors. Topics include the evolutionary relationships of the various groups of modern primates, the divergence and physical evolution of the human lineage and origin of modern Homo Sapiens. In addition an attempt is made to correlate our knowledge of the behavior of the nonhuman primates, ethnography, fossils and archeology so as to gain insights into the origins and evolution of human social behavior and our distinctive cultural adaptation.

**SO 349 3 credits****The Computer and Data Analysis (PSC 349)**

An introduction to basic statistics and the use of the computer for data analysis. Students learn computer applications with the Statistical Package for the Social Sciences (SPSS) on the University mainframe computer. Computer work is closely supervised and conducted as a tutorial. Prerequisites: Social Science major, upperclass standing, or permission of instructor.

**SO 350 3 credits****Readings in Sociological and Anthropological Literature I**

Directed readings and analysis in selected sociological topics.  
Prerequisite: Permission of instructor

**SO 351 3 credits****Readings in Sociological and Anthropological Literature II**

Directed readings and analysis in selected sociological topics.  
Prerequisite: Permission of instructor

**SO 352 3 credits****Readings in Sociological Literature III**

Directed readings and analysis in selected sociological topics.  
Prerequisite: Permission of instructor

**SO 353 3 credits****Readings in Sociological Literature IV**

Directed readings and analysis in selected sociological topics.

Prerequisite: Permission of instructor

**SO 355 3 credits****Social Work II**

A continuation of SO 203.

**SO 360 or AN 360 3 credits****Structures of Power and Inequality**

This course will consider many bases of inequality including the artificial distinctions of age, sex, race, and hereditary position in a family line, occupation, ethnicity, and nationality. Talents and temperaments are often specialized to one sex, one class, one caste, etc. This course will explore what bases of inequality (whether one or many) are found within a number of social systems. These alternate social forms of inequality will be cross compared.

Prerequisite: SO 101 or AN 111 or SO 113 or AN 113

**SO 369 or AN 369 3 credits****Visual Symbols and Myth**

In order to coexist with unknown forces of nature and the cosmos, people in all cultures have developed elaborate systems of explanations. The systems are formulated in visual symbols, oral and written myth and rituals. Often these systems seem irrational and unpredictable; yet when such systems are carefully studied and analyzed they reveal pervasive human needs to give meaning and order to a seemingly chaotic world; and also to change what is perceived as an unsatisfactory order. It is the purpose of this course to study the underlying structure and content of visual symbols, myth, and ritual, and analyze the social implications of these systems.

**SO 400 3 credits****Special Topics**

Selected topics such as juvenile delinquency, probation and parole, white collar crime, and related topics in criminal justice will be offered.

Prerequisite: Open to seniors electing the Criminal Justice option, or by permission of instructor.



**SO 401 3 credits****Research Methods**

Language and social inquiry; issues related to ideas of knowing, explaining, understanding, confirming, etc; valiative and affective elements in inquiry; empirical testability of propositions; quantitative and qualitative procedures of data collection and analysis; study of example cases.

Prerequisite: SO 101 or AN 111 or SO 113 or AN 113 and one advanced course in a social science.

**SO 402 3 credits****Sociological Theory**

This course focuses on the synthesizing and integrative functions of theory in the sociological enterprise. It seeks to awaken an awareness of the nature and role of concepts in theory construction, and to highlight the gains and losses which accrue in all linguistic statements about the world. The work of Marx, Durkheim, Weber, Veblen, Sorokin, G.H. Mead and R.K. Merton are given special attention, both as pioneering examples of theoretical innovation and as substantive points of departure for future inquiry.

Prerequisite: SO 101 or SO 113 or AN 113 and one advanced sociology course.

**SO 403 3 credits****Social Service Internship**

This course, taken in conjunction with contract learning, will provide students with the opportunity to integrate theory with community practice. Students will present and analyze their work situations to each other and support groups will be set up to deal with problems encountered in the work setting. The larger effort will be to develop a critical understanding of the relation of this field experience to the principles governing society as a whole and an overall strategy for meeting with needs of the community.

Prerequisite: SO 203 or permission of instructor

**AN 405 3 credits****Anthropological Theory**

An analysis of the major theoretical orientations of anthropologists toward the two central anthropological questions: the nature and origin of the human species and the nature and origin of culture and civilization.

Prerequisite: AN 111 or 113

**SO 406 3 credits****Sociology of Art II**

Sociology of Art II will explore interrelationships between art making and the social context in which art is made. The course will explore theoretical and methodological questions related to sociology of art and will then focus upon one period or problem, e.g. the 19th century of artistic responses to the rise of industrialization.

**SO 407 or AN 407 3 credits****Field Inquiry**

Research problem formulation, study design and the gathering and analysis of data in Sociology and Anthropology, with primary emphasis upon field work. In addition to reading and seminar discussions, each student will participate throughout the seminar in supervised field inquiry. Interested students should talk with the instructor about field work possibilities and arrangements. Upon the approval of the instructor, students may register for either 3 or 6 semester hours in a single semester or three semester hours in each of two successive semesters.

Prerequisite: SO 101 or AN 111, or SO 113 or AN 113 and one advanced course in a social science, and permission of instructor.

**SO 420 or AN 420 3 credits****Senior Seminar**

Students will discuss and write papers on aspects of a subject chosen for the semester.

Prerequisites: for seniors only. Permission of instructor required

**SO 430 3 credits****Seminar on Advanced Problems in Sociological Theory I**

Selected theoretical problems, theorists or schools of thought examined in depth.

Prerequisite: Permission of instructor

**SO 431 3 credits**

**Seminar on Advanced Problems in Sociological Theory II**

Selected theoretical problems, theorists or schools of thought examined in depth.

Prerequisite: Permission of instructor.

**SO 450 3 credits**

**Internship**

Students registering for this course are placed in relevant positions in the criminal justice system, such as a parole office, court, or correctional facility, where their work will be supervised by an on-site sponsor as well as Departmental advisor.

Prerequisite: Senior sociology major or permission of instructor.

**SO 900**

**Contract Learning**

**SO 492 or AN 492**

**Honors Research**

**SO 495 or AN 495**

**Independent Study**



## Faculty and Fields of Interest

**Roberta H. Aaronson** Associate Professor of Sociology

**Diane Barese** Assistant Professor of Philosophy

**John E. Bush** Associate Professor of Sociology

**Elleen Carreiro-Lewandowski** Assistant Professor of Medical Technology

**Magali M. Carrera** Assistant Professor of Art History

**John J. Carroll** Assistant Professor of Political Science

**Julie Cleare** Associate Professor of Psychology

**Phillis Currier** Assistant Professor of Nursing

**Jean Doyle** Associate Professor of Political Science

**Geraldine Gamburd** Professor of Sociology

**Donna L. Huse** Associate Professor of Sociology

**Barbara R. Jacobskind** Associate Professor of English

**Gerard M. Koot** Professor of History

**Margaret Miller** Professor of English

**Betty L. Mitchell** Director of Curriculum, Women's Studies; Associate Professor of History

**Rita Moniz** Administrative Director, Women's Studies; Associate Professor of Political Science

The Women's Studies Program brings together the resources of the traditional disciplines in exploring women's position in and contributions to society. In addition to basic academic and analytic capacities, Women's Studies students will develop:

knowledge about the contributions of women to society: historical, scientific, political, literary, artistic, economic, philosophical, educational, psychological, religious, etc.;

an understanding of the dynamics and history of the traditionally unequal social, political, and economic status of women;

a familiarity with gender-based differences between males and females as they have developed in various cultures;

an understanding of how the methodologies of the various disciplines have to be altered to deal adequately with women's experience of society; and

a capacity to analyze current events from a Women's Studies perspective and to make informed political and ethical choices.

Women's Studies is the discovery of the lives of women in society: not only their frustrations and difficulties, but also their courage, cooperation, struggles, and achievements.

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## **Multidisciplinary Studies Major**

The requirements for the Multidisciplinary Studies Degree are as follows:

1. General requirements for the B.A. Degree (or B.S. Degree, as the case may be) must be satisfied.
2. The student must, in lieu of a Department Chairperson, obtain a faculty member to act as a faculty advisor.
3. To enroll as a candidate for the Multidisciplinary Studies Degree, the student should, by the end of the sophomore year (and no later than the end of the junior year), file with the Dean of the College a proposal which has been approved by a faculty advisor and which includes a minimum of 30 credits in advanced and specialized courses (300 level and above), thus creating the student's own "major." The student becomes a candidate for the Multidisciplinary Studies Degree when the proposal is approved by the Dean.
4. Any subsequent changes in the recognized program of studies must be approved by the student's advisor and by the Dean.

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## **Women's Studies Minor**

The minor in Women's Studies is open to any student, and anyone can take individual courses from the Women's Studies course offerings. WS courses satisfy social science, humanities and general elective distribution requirements. Almost any academic major can be combined with a WS minor. Though a student may take WS courses at any time, the minor cannot be formally declared until a student has 54 credits.

**Requirements for the minor:** Eighteen units of WS credit, including at least one 100-level course and at least three 300-400 level courses. Courses must be taken from at least three different departments. The student must maintain an overall GPA of 2.0 and a GPA in her/his major of 2.5

## Women's Studies Courses

### **WS 101 3 credits**

#### **Introduction to Women's Studies**

A multidisciplinary perspective on important issues facing women today; domestic roles, childbirth, the health care system, work, sexuality, and women in the third world. Other cultural contexts which may point the way toward transformation of woman's place in society are also investigated through a pedagogy which stresses student involvement. Satisfies Social Science distribution requirement.

### **WS 102 (PI 102) 3 credits**

#### **Philosophical Aspects of Feminism**

An introduction to philosophical reasoning, analysis of arguments and developing of critical skills, through a consideration of various topics relevant to feminism. Topics may include: presuppositions about woman's nature, abortion, sex equality, affirmative action. Satisfies Humanities distribution requirement.

### **WS 107 (HY 207) 3 credits**

#### **Women's History in the United States: Colonial to the Present**

Survey of the history of women - black and white, native and immigrant, rich and poor - in the U.S from colonial times to the present. Among the topics to be discussed are: women's role in agrarian vs. industrial society; women and the family; women in the labor movement; female friendships and organizations; the frontier experience; women's suffrage; sex and sex roles; and the birth and growth of the feminist movement. Satisfies Humanities distribution requirement.

### **WS 110 3 credits**

#### **Women in Contemporary American Society**

This course explores mother-daughter relationships, women and religion, changing family life, the impact of race and ethnicity on women, and other topics pertinent to women's experience in contemporary American society. Satisfies Social Science distribution requirement.



**WS 200 3 credits****Career Decision-Making for Women**

This is a course about career development and the decision-making styles of women. The focus is on the individual decision-making process as it applies to career choice. Career sex-role stereotypes are explored. Free elective.

**WS 207 (NUR 207) 3 credits****Women's Health Issues**

A general course about women's health needs and physiological events during the various stages of life. Focus is on providing basic health information related to women's reproductive capacity. Nursing elective; may fulfill elective credits for non-majors. No special conditions or prerequisites. Free elective.

**WS 213 (HY 113) 3 credits****Introduction to History (when the topic is Lizzie Borden)**

The focus of this discussion-type course is historical methodology. Using primary source documents such as newspapers, wills, city directories, the federal census, etc., students will study the fascinating case of Lizzie Borden of Fall River, who was accused of the brutal axe murder of her father and stepmother.

Satisfies Humanities distribution requirement.

**WS 228 (SO 228) 3 credits****Sex Roles and Sexuality in American Society**

This course will study the changing definitions of the roles of men and women in American Society as we perceive them from our experience and from a social, historical, biological perspective. Class sessions will include the following: the development of male and female in the evolutionary system; human and animal sexuality; cross-cultural sexual identities; images of male and female in American literature, movies and the popular imagination; socialization and the development of sexual identity; problems of courtship and intimacy.

Satisfies Social Science distribution requirement.

Prerequisite: Permission of instructor.

**WS 232 (PSC 232) 3 credits****Women and the Law**

The constitutional and legal status of women in America is discussed in this course. Topics include the scope of the equal protection clause, the right to privacy, and the "special" nature of women. The emphasis is upon the analysis of primary documents such as judicial opinions and statutes. Satisfies Social Science distribution requirement.

**WS 240 (SO 240) 3 credits****Dynamics of Community Organization**

This course will provide students with an analysis of the theory and practice of community organizing with particular emphasis on the development of social action and community development techniques on the grass-roots level. This course will be conducted as a seminar with student participation in class discussions to be the major vehicle for the exchange and development of ideas. In addition, mini-lectures, field simulations, role-playing, guest speakers and field observations will be utilized.

Satisfies Social Science distribution requirement.

**WS 245 (ENG 245) 3 credits****Images of Women in Literature**

A study of archetypes and stereotypes of women in literature from the ancient world to the present in an attempt to reevaluate traditional literary criticism and the way authors have used images of women to create character, plot, etc.

Satisfies Literature distribution requirement.

**WS 246 (ENG 246) 3 credits****Women Writers**

The study of literature by and about women, this course examines the relationship between the woman writer and her work, including such questions as "is there a feminine style?" "Are there certain themes to which women are drawn?" "What has been the role of women writers in the development of various genres?"

Satisfies Literature distribution requirement.

**WS 248 (AN 248) 3 credits****Alternative Communities in Industrial Society**

This course encourages thought about the quality of experience in advanced industrial society and alternatives for regaining control over our life choices and livelihood. The technological alternatives to mass production are considered, and egalitarian communities in which members jointly control decisions through participation in local economies, politics and technology are studied.

Satisfies Social Science distribution requirement.

**WS 300 3 credits****Topics in Women's Studies**

This course will cover special topics in Women's Studies. The topics will be determined by the faculty member and will therefore vary.

**WS 310 (HY 310) 3 Credits****America's Working Women**

This course will examine the experience of American working women—black and white, native and immigrant, organized and unorganized—from the colonial period to the present day. Because work is defined as productive labor, this course will examine women as paid and unpaid workers—in the marketplace as well as in the home. Some of the areas of study will be women on the frontier, women in the mills and factories, labor union women, women in the professions, and the history and politics of housework. Satisfies Humanities distribution requirement.

**WS 317 (HY 317) 3 credits****History of European Women**

This survey of Women's history from the Renaissance to the present will critically examine the recent scholarship on this topic. The course will deal both with remarkable and ordinary women. Extensive use will be made of recent research on the history of the family and social demography as well as the more traditional areas of political, intellectual, and economic history. While emphasizing Western Europe, the course will include some material from the Americas and other areas.

Satisfies Social Science distribution requirement.

**WS 318 (HY 318) 3 credits****Women's Biography and Autobiography**

This course will examine the lives of various women in the United States, Great Britain, and elsewhere both from a literary and historical perspective. Examples of women whose lives will be studied are Charlotte Bronte, Sarah and Angelina Grimke, Charlotte Perkins Gilman.

Satisfies Humanities distribution requirement.

**WS 324 (SO 324 of AN 324) 3 credits****Women in Contemporary Society**

Using an historical and comparative approach, this course examines the roles and status of women in contemporary societies. The course integrates theory of sexual inequality and its relation to other forms of social inequality and empirical analysis of the actual conditions of women. Women's participation in social movements in the U.S and Third World countries is addressed as part of the analysis of the changing roles and statuses of women.

Satisfies Social Science distribution requirement.



**WS 327 (AN 327) 3 credits****Myth and Ritual**

Exploration of the significance of myth and ritual and the history of its study. Myths and rituals of a world wide sample are analyzed from functional, structural and symbolic points of view.

Prerequisite: AN 111 or 113. Satisfies Social Science distribution requirement.

**WS 335 (SOC/ANTHRO 335) 3 credits****Social Policy**

This course critically analyzes the impact of policies on the status of women in society. specific policies and programs—e.g. women and employment, childcare, and healthcare—are the focus of discussion. Satisfies Social Science distribution requirement.

**WS 338 (PSC 338) 3 credits****Woman As Citizen**

This course focuses on the particular role which gender plays in defining citizenship. An important theme for analyzing the citizenship status of women stems from the public/private dilemma. Therefore, the course material will develop a critical analysis of that dilemma and how, with corollary concepts, it defines the citizenship status of contemporary American women. this course explores a range of citizen activities the "Gender Gap", Women in Public Office and Women Interest Groups. Satisfies Social Science distribution requirement.

**WS 339 (PSC 339) 3 credits****Women and Public Policy**

The course is designed to develop an understanding of the public policy process, of how women's issues fare in that process and why, and of the strengths and weaknesses of women as participants in political process. The course will be taught from the feminist perspective and will thus expand the students' awareness of alternative approaches to political phenomena.

Satisfies Social Science distribution requirement.

**WS 347 (EN 347) 3 credits****Special Topics In Women's Literature**

The course explore a topic selected by the instructor. Some examples are Women's Non-Fiction Prose, Women's Biography and Autobiography, and Contemporary American Women Writers.

Satisfies Literature distribution requirement.

**WS 375 (PY 375) 3 credits****Psychology of Sex Difference**

This course is designed to stimulate discussion among men as well as women, by exploring topics such as the development of sex differences, socialization practices, attitudes, values and role expectations which affect the self-concept and interpersonal relationships.

Prerequisite: PY 101, PY 205, PY 210. Satisfies Social Science distribution requirement.

**WS 400-498 Seminars****WS 499 Independent Study/Directed Study****WS 900 Contract Learning**

**\* When a Women's Studies project is elected.**

**WS 355 (SO 355) 3 credits****Social Work II**

A continuation of SO 203 Social Work I; please see department listing for description and prerequisites.

Satisfies Social Science distribution requirement.

**WS 360 (AN 360) 3 credits****Structures of Power and Inequality**

This course will consider many bases of inequality including the artificial distinctions of age, sex, race, and hereditary position in a family line, occupation, ethnicity, and nationality. Talents and temperaments are often specialized to one sex, one class, one caste, etc. This course will explore what bases of inequality (whether one or many) are found within a number of social systems. These alternate social forms of inequality will be cross compared.

Prerequisite: SO 101/AN 111 or SO 113/AN 113.

**WS 369 (AN 369) 3 credits****Visual Symbols and Myth**

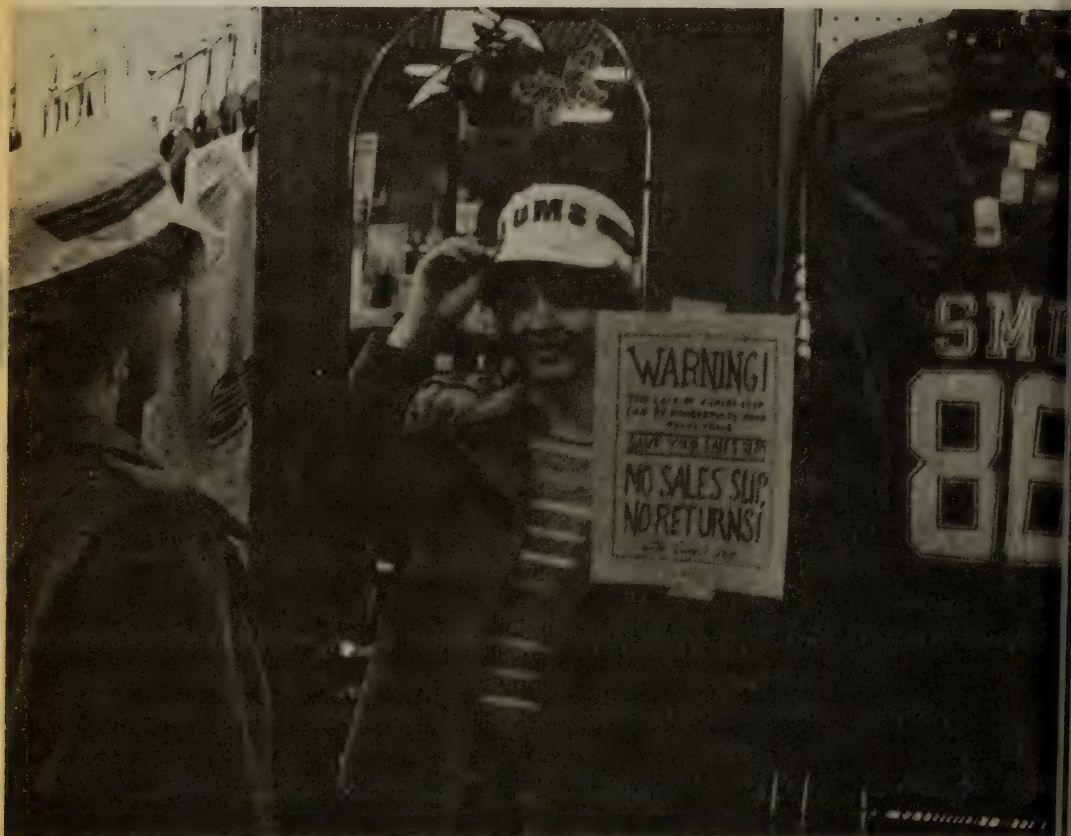
In order to coexist with unknown forces of nature and the cosmos, people in all cultures have developed elaborate systems of explanations. The systems are formulated in visual symbols, oral and written myth and rituals. Often these systems seem irrational and unpredictable; yet when such systems are carefully studied and analyzed they reveal pervasive human needs to give meaning and order to a seemingly chaotic world; and also to change what is perceived as an unsatisfactory order. It is the purpose of this course to study the underlying structure and content of visual symbols, myth, and ritual, and analyze the social implications of these systems.

Satisfies Social Science distribution requirement.





# College of Business and Industry



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The College of Business and Industry is made up of three departments with majors in seven areas leading to the Bachelor of Science Degree:

**The Department of Accounting and Finance**, granting degrees in Accounting and Finance.

**The Department of Management**, granting degrees in Human Resources Management, Management, and Marketing.

**The Department of Textile Sciences**, granting degrees in Textile Chemistry and Textile Technology.

Several specialized options are available in the Textile Technology Program:

- Fabrication
- Dyeing and Finishing
- Business Administration
- Structural Science
- Mechanical Engineering Technology
- Electrical Engineering Technology
- Fashion Buying and Merchandising
  - through a cooperative program with the Fashion Institute of Technology in New York City
- Retailing and Merchandising.

Students in the Department may also select Textiles with a Business or Engineering option.

The programs in the College combine a general education with specialized study in specific areas of business and industry. Emphasis is placed upon the acquisition of a basic understanding of both underlying theories and their practical applications. Graduates of these programs are well prepared for careers in administration, industrial management, research, teaching, or for advanced study at the graduate level.

An MBA program is offered in the Division of Continuing Studies.

M.S. Degrees in Textile Chemistry and Textile Technology are offered in the Textile Sciences Department.

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## **Requirements for Bachelor of Science Degree**

### **Freshman English**

All first year students in the College are required to take Freshman English (ENG 101,102), a two-semester course in the basic skills of communication, written and spoken, unless specifically excepted by an advanced placement test administered by the department of English.

### **Curriculum**

Curriculum offerings reflect the need for adequate specialization, with a core of basic occupational skills necessary to all fields of specialization, together with a substantial segment of liberal arts and humanities and the opportunity for diversification into changing allied areas.

Students have available to them such valuable tools as a sophisticated computer installation (which may be used for a range of activities which includes case study analysis, business information production runs), television production facilities, audiovisual aids, electronic learning aids, an FM radio station and exposure to special problem approaches, such as case studies, research projects, in-field situation exposure, and cooperative professional organization seminars.

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## **Minors in the College of Business and Industry**

The College of Business and Industry offers an opportunity for non-majors to take a minor in Business. Students must satisfy certain basic requirements prior to acceptance into a Business minor. Those seeking admission should consult with the chairpersons of the Accounting and Finance or Management departments.



## Faculty and Fields of Interest

**Edward Cormier** accounting, taxation

**Charles Hague** business law

**Raymond Jackson** finance, quantitative analysis, financial management

**Frederick Jones** accounting, info systems

**Alphee Laflamme (chairperson)** accounting, information systems

**Helen LaFrancols** accounting, taxation

**Kooros Maskooki** finance, financial institutions, investments

**Robert Oxman** accounting, taxation

**J. Roland Richard** accounting, auditing

**Priscilla Tabachnik** accounting, cost accounting

The department of Accounting and Finance offers two major programs leading to the Bachelor of Science Degree in Accounting or in Finance. The candidate for either degree must satisfactorily complete one of the specified curricula. The Accounting major must include in this program 15 semester credits in the humanities or social sciences. The Finance major is required to include 21 semester credits in the humanities and the social sciences.

## The Department of Accounting and Finance Freshman Core Program

First Year				Semester Credits:	First	Second
ENG	101	102	Freshman English		3	3
MA	101	102	Elements of College Mathematics		3	3
BA	115		Introduction to Business		3	
BA	112		Introduction to Computer Technology			3
AC	101	102	Accounting I and II		3	3
			Humanities or Social Science Electives		3	3
					15	15

## Accounting Major

Accounting as a discipline and as a profession provides a means of obtaining information essential to modern industry in making policy decisions and in setting up plans for successful business management. It serves to maintain the system of checks and balances so as to reduce the need for supervision, and to minimize errors, fraud, and waste. Furthermore, accounting plays an important role in setting and enforcing standards of performance which improve efficiency, coordination and integration of business activities. The curriculum in accounting is designed to acquaint students with the philosophy of accounting to give them a comprehension of accounting theory; to instruct them in technique; to develop their skill in the performance of accounting; to train them to set up accounting systems and to interpret accounting data, and to develop a professional attitude.

Completion of a major in accounting prepares students for employment as public or industrial accountants in government service and for graduate study in accounting and business.

## Requirements

Second Year				Semester Credits:	First	Second
EC	231	232	Economics I and II		3	3
MA	231	232	Elementary Statistics and Decision Theory		3	3
AC	201	202	Intermediate Accounting I and II		3	3
			Natural or Applied Science Electives		3	3
MK	321		Principles of Marketing		3	
			Humanities or Social Science Electives			3
					15	15
Third Year				Semester Credits:	First	Second
BA	321	322	Quantitative Business Analysis I and II		3	3
AC*	301		Advanced Accounting			3
BA	311	312	Legal Framework of Business I and II		3	3
FI*	315		Financial Analysis		3	
AC*	351	352	Cost Accounting I and II		3	3
AC*	355		Accounting Information Systems I			3
AC*	203		Intermediate Accounting III		3	
					15	15

Fourth Year			Semester Credits:	First	Second
AC*	401	Auditing		3	
AC*	411	412 Taxation I and II		3	3
AC*	451	Contemporary Accounting Theory and Problems		3	
MN*	431	Business Policy			3
BA	350	Business Communications		3	
		Business Electives			6
		Humanities or Social Science		3	3
				15	15

\*Indicates courses that must be taken at SMU.

## Finance Major

The curriculum in finance seeks to develop in the student an understanding of business and economic structuring from the financial viewpoint. The basic objectives of the program are to provide an understanding of the contributions of the financial systems to the economy and to prepare students for careers in financial management of industrial and commercial enterprises; commercial, savings and mortgage banking investment analysis and portfolio selection, and financial positions in government.

## Requirements

Second Year			Semester Credits:	First	Second
EC	231	232 Economics I and II		3	3
MA	231	232 Elementary Statistics and Decision Theory		3	3
		Natural or Applied Science Electives		3	3
AC	201	202 Intermediate Accounting I and II		3	3
		Humanities or Social Science Electives		3	3
				15	15



Third Year			Semester Credits:	First	Second
BA	321	322	Quantitative Business Analysis I and II	3	3
BA	350		Business Communications		3
BA	311		Legal Framework of Business I	3	
FI*	381		Money Banking & Economic Activity	3	
FI*	398		Financial Institutions	3	
FI*	315		Financial Analysis	3	
FI*	385		Applied Capital Budgeting		3
			Humanities or Social Science Elective		3
			Business Elective		3
				15	15
Fourth Year			Semester Credits:	First	Second
FI*	483		Investment Analysis	3	
FI	484		Federal Tax Accounting		3
FI*	485		Seminar	3	
FI*	493		Financial Management of Corporations		3
MN	431		Business Policy		3
			Economics Elective	3	
FI	494		International Financial Management	3	
			Humanities or Social Science Electives	3	3
			Unspecified Elective		3
				15	15

\*Indicates courses that must be taken at SMU.

## Faculty and Fields of Interest

**Donald Capron** principles of marketing, sales management

**John Chopoorian** marketing and small business management

**Harriet Collins** advertising, promotional strategy

**Roger Deveau** quantitative analysis and management systems

**James Dorris (chairperson)** introduction to business, business communication

**Eugene Godfredsen** quantitative business analysis, information systems

**Thomas Higginson** industrial management, labor relations

**Peter Hodges** business policy, managerial economics

**Merritt LaPlante** marketing management and research

**Richard Legault** computer science, operations management

**Gregory O'Connor** principles of marketing, introduction to business

**Ponakanti B. Reddy** quantitative analysis, computer technology, operations management

**Richard Sparks** production management, industrial management

**Richard J. Ward** managerial economics, international business management

**Donald Wetmore** industrial relations, human resource development

**William C. Wild, Jr.** management

**Robert Witherell** organizational behavior, computer science

The Department of Management offers three major programs leading to a Bachelor of Science Degree: Human Resources Management, Management, and Marketing.

The candidate for the degree must satisfactorily complete one of the specified curricula. The Human Resources Management and Marketing majors must include in their programs 21 semester credits in the humanities and social sciences. The Management major is required to have 18 semester credits in the humanities and social sciences.

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### **The Department of Management Freshman Core Program**

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First Year				Semester Credits:	First	Second
ENG	101	102	Freshman English		3	3
MA	101	102	Elements of College Mathematics		3	3
BA	115		Introduction to Business		3	
BA	112		Introduction to Computer Technology			3
AC	101	102	Accounting I and II		3	3
			Humanities or Social Science Electives		3	3
					15	15

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### **Human Resources Management Major**

Human Resources Management is devoted to the study of the human side of management. Its objective is to offer an understanding of problem solving in one of the most critical and interesting problem areas in organizations, the human relations area. Included are studies of Personnel Management, a developing field with growing career opportunities, Labor Relations, and the relation of government regulations to equal opportunities, safety, union relations and other key management concerns.

Human Resources Management concentrates on a people-centered approach which is vital to success in a wide range of management careers.



## Requirements

Second Year			Semester Credits:	First	Second
EC	231	232	Economics	3	3
MA	231	232	Elementary Statistics and Decision Theory	3	3
			Natural or Applied Science Electives	3	3
IR	394		Negotiations, Mediation, Arbitration of Collective Bargaining Agreements	3	
BA	311		Legal Framework of Business		3
			Humanities or Social Science Electives	3	3
				15	15
Third Year			Semester Credits:	First	Second
BA	321	322	Quantitative Business Analysis I and II	3	3
IR	396		History of Trade Unionism	3	
MN	341		Production Management	3	
MN	373		Human Relations in Business	3	
MK	321		Principles of Marketing	3	
MN	395		Managerial Psychology		3
MN	342		Time and Motion Study		3
BA	350		Business Communications		3
			Humanities or Social Science Elective		3
				15	15
Fourth Year			Semester Credits:	First	Second
IR	421		Labor Management	3	
IR	422		Personnel Management		3
IR	481	482	Human Resources Management	3	3
IR	462		Manpower Resources		3
MN	432		Administrative Practices		3
			Business Elective	3	
			Humanities or Social Science Electives	3	3
			Unspecified Elective	3	
				15	15

## Management Major

The management program gives the students a broad perspective of the organization and operation of large and small business enterprises. Careful selection, by the student, of junior and senior year elective business courses allows for alignment of coursework with the student's career goals. In addition, it is suggested that humanities and social sciences electives in the areas of sociology, psychology, political science and economics be considered as particularly useful for the management student.

Further objectives of the curriculum are the improvement of the student's ability to identify problem areas and to make sound value judgments, the resources in business, and emphasizing the analytical approach to decision making. To this end, the SMU Contract Learning program is strongly recommended for management students. This and other special program interests should be discussed at the earliest opportunity with the student's faculty advisor.

## Requirements

Second Year			Semester Credits:	First	Second
EC	231	232	Economics	3	3
MA	231	232	Elementary Statistics and Decision Theory	3	3
BA	311		Legal Framework of Business	3	
BA	350		Communications in Business		3
BA	214		Information Systems		3
			Natural or Applied Science Electives	3	3
			Humanities or Social Science Elective	3	
				15	15

Third Year			Semester Credits:	First	Second
BA	321	322	Quantitative Business Analysis I and II	3	3
MK	321		Principles of Marketing	3	
MN	341		Production Management	3	
MN	373		Human Relations in Business	3	
FI	312		Business Finance		3
MN	372		Managerial Economics		3
			Business Elective	3	
			Humanities or Social Science Electives		6
				15	15

Fourth Year			Semester Credits:	First	Second
MN	431	Business Policy		3	
IR	421	Labor Management		3	
IR	422	Personnel Management			3
MN	461	Industrial Management		3	
		Business Electives		3	6
		Humanities or Social Science Elective		3	
		Unspecified Electives			6
				15	15

## Marketing Major

The marketing curriculum is designed to prepare students for successful careers in the many phases of marketing and distribution of products and services throughout the economy.

Courses are oriented toward problem solving and management decision making. The total curriculum emphasizes knowledge and competence in marketing that will enable the graduate to progress well in the early stages of his career; to develop the ability to analyze, plan, organize, coordinate, motivate and control; to think creatively; to communicate effectively, and to gain broad perspectives essential to the attainment of ownership or executive management responsibilities. Further career opportunities are available in research, sales management, brand/product management, retail management, and advertising and promotion.

## Requirements

Second Year				Semester Credits:	First	Second
EC	231	232	Economics		3	3
MA	231	232	Elements of Statistics and Decision Theory		3	3
BA	311		Legal Framework of Business		3	
BA	350		Business Communications			3
			Natural or Applied Science Electives		3	3
			Humanities or Social Science Electives		3	3
					15	15



Third Year			Semester Credits:	First	Second
BA	321	322	Quantitative Business Analysis I and II	3	3
FI	312		Business Finance		3
MN	373		Human Relations in Business (or)		
IR	422		Personnel Management	3	
MK	321		Principles of Marketing	3	
MK	330		Promotional Strategy		3
			Marketing Elective		3
			General Business Elective	3	
			Humanities or Social Science Electives	3	3
				15	15

Fourth Year			Semester Credits:	First	Second
MN	431		Business Policy	3	
MK	422		Marketing Management		3
MK	451		Marketing Research	3	
			Marketing Electives	6	6
			Marketing or General Business Elective		3
			Humanities or Social Science Elective	3	
			Unspecified Elective		3
				15	15

## Accounting Courses

### AC 101 3 credits

#### Accounting

Accounting concepts and procedures are studied through the analysis, classification, recording and summarizing of business transactions. Financial statements are introduced and shown to be a source of essential information for management and others outside of the business.

### AC 102 3 credits

#### Accounting II

A continuation of AC 101. The analysis of financial statements is elaborated upon through detailed consideration of each item on the balance sheet. Accounting principles are studied and the Statement of Changes in Financial Position is introduced.

Prerequisite: AC 101.

**AC 201 3 credits****Intermediate Accounting**

An overview of the entire accounting process designed to provide a gradual transition from the introductory course to a more rigorous level of analysis. A critical evaluation of the traditional accounting as it pertains to current assets and current liabilities is encouraged and correlated with the latest pronouncements of the Financial Accounting Standards Board. Prerequisite: AC 101, 102.

**AC 202 3 credits****Intermediate Accounting II**

A continuation of AC 201. The critical review of accounting theory begun in AC 201 is extended to long-term investments and plant assets. Problems familiar to the long-term debt section and the stockholders' equity section of the balance sheet are explored in depth. Prerequisite: AC 201.

**AC 203 3 credits****Intermediate Accounting III**

To cover the more specialized areas usually presented in intermediate Accounting texts which ordinarily require more in depth analysis and knowledge of the more recent accounting pronouncements. These areas involve pensions, leases, tax allocation, financial analysis, and inflation accounting. Also any specific areas receiving current attention in accounting pronouncements will be discussed. Prerequisites: AC 101, 102, 201, and 202.

**AC 301 3 credits****Advanced Accounting**

A study of special accounting areas including: retail land sales, franchising, business combinations, foreign operations, partnerships, insolvency, governmental and estates and trusts. Prerequisites: AC 201, 202, and 203.

**AC 351 3 credits****Cost Accounting I**

Procedures for determining and measuring costs using job order cost and process cost systems are developed. Accounting and materials, labor and overhead costs using both manual and electronic data processing techniques is examined in detail. Prerequisite: AC 202.

**AC 352 3 credits****Cost Accounting II**

Cost planning and control techniques including standard costs, budgeting, control reports, variance analysis, cost behavior analysis, direct costing, and cost-volume-profit analysis are all thoroughly developed and studied.

Prerequisite: AC 351.

**AC 355 3 credits****Accounting Information Systems I**

A detailed study in the use of the systems approach and the use of the computer in supplying accounting information to a business enterprise.

**AC 361 3 credits****Industrial Accounting**

A presentation of the basic accounting principles, procedures, and terminology as they apply to a manufacturing organization. Emphasis is placed on the analysis of operating statements and their significance to management, creditors, and stockholders.

Prerequisite: Engineering or textile student.

**AC 401 3 credits****Auditing**

A study of the audit function as performed by the outside public accounting firm. All stages are covered — planning the audit, gathering evidence, review of internal control provisions, development of working papers, analysis of accounts, preparation of statements, and final audit report. The ethics of the accounting profession are stressed throughout the course.

Prerequisite: AC 301.

**AC 411 3 credits****Taxation I**

Federal Income Tax problems confronting the individual taxpayer including the self-employed individual.

**AC 412 3 credits****Taxation II**

A continuation of AC 411 with emphasis on the preparation of partnership and corporation tax returns.

Prerequisite: AC 411.

**AC 451 3 credits****Contemporary Accounting Theory and Problems**

Contemporary Accounting Theory and Problems is primarily a descriptive interpretation of the Opinions and Standards issued by the American Institute of Certified Public Accountants or its committees — the Financial Accounting Standards Board, the Accounting Principles Board and the Committee on Accounting Procedures — together with review or reports and



articles from various accounting groups and individuals. In this manner, the student is exposed to the official concepts of accounting and at the same time acquires a broader view of the basic levels of financial accounting theory and practices by drawing upon methodological frameworks supported by empirical evidence.

Prerequisite: Accounting seniors only.

**AC 452 3 credits**

**Special Topics in Accounting**

The course focuses on the following special areas: the principles underlying the design and installation of accounting systems; the accounting role of the comptroller in an organization; accounting for governmental and not-for-profit organizations.

Prerequisite: AC 301 and senior standing.

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## **General Business Courses**

**BA 112 3 credits**

**Introduction to Computer Technology**

An introduction to data processing emphasizing the use of computing machinery to solve information needs. Common business applications are used to examine a wide range of methods. The BASIC programming language is employed with interactive computing facilities to aid in understanding how the computer processes data.

**BA 115 3 credits**

**Introduction to Business**

A study of business organization centering on form, philosophy, activities within it, influence on the economy, and responsibility to society. It is meant to help the student develop a better understanding of the free enterprise system. (BA 116 may be substituted.)

**BA 116 3 credits**

**Fundamentals of Business Enterprise**

A primary emphasis in the course is placed on the study of the history and form of the business enterprise, the many activities that take place within it, and the role of business in the economy. Serious attention is paid to several of the more recent issues of concern to business such as social responsibility, material shortages, etc. (BA 115 may be substituted.)

**BA 214 3 credits****Information Systems**

A beginning course in systems analysis designed specifically for the student with prior knowledge of data processing and computer technology. Emphasis is placed on the interrelationship of each phase of systems development and the mastery of the tools of the systems analyst.

Prerequisite:BA 112.

**BA 311 3 credits****Legal Framework of Business I**

A study of contracts and the Uniform Commercial Code as it relates to sales, commercial paper, and secured transactions.

**BA 312 3 credits****Legal Framework of Business II**

A study of the laws governing debtors, creditors and agencies. The formation, operation, and liquidation of the partnership and corporation are also discussed. Personal and real property including bailments, wills, estates and trusts are also covered.

Prerequisite:BA 311.

**BA 321 3 credits****Quantitative Business Analysis I**

QBA I and II:A two semester course designed to introduce the student to a wide range of quantitative decision making techniques in widespread business use today and to the processes of quantitative analysis. Interactive computing facilities and the case method are utilized in the preparation of solutions to problems business situations.

**BA 322 3 credits****Quantitative Business Analysis II**

Continuation of BA 321.

Prerequisite:BA 321.

**BA 350 3 credits****Communications in Business**

A course in communication skills concentrating on the application of these skills in the business arena. Emphasis is placed on the development of techniques in such areas as business report writing, professional presentations, job interviews, applications, applications, resume writing, memos, dictation, and the conduct of meetings.

**BA 370 3 credits****ANS COBOL Language**

An independent study course designed to train students to code and debug application programs using the COBOL language. Machine problems and exercises are used to reinforce the material presented in sequential assignments. COBOL is introduced using unit record equipment followed by disk input output.

Prerequisite: BA 112, BA 214.

**BA 471 3 credits****Real Estate**

A basic, but intensive course covering legal, financial, and managerial aspects of residential real estate. Areas of study include legal framework, types of ownership vehicles, financing, appraisal, income property management, cash flow, tax applications, and real estate licensing examination preparation.

**BA 472 3 credits****Insurance**

A course providing the necessary minimal insurance background for students contemplating a career in business. Specific insurance areas presented are: life, annuities, fire, homeowner, inland marine, workmen compensation, and general business liability.

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**Finance Courses****FI 312 3 credits****Business Finance**

An introduction to the nature of financial management. It presents the basic tools used in the decision making process as they pertain to the acquisition, management, and financing current and long term assets. It includes treatment of working capital policies, the time value of money, capital budgeting, and debt and equity financing.

Prerequisite: AC 102.

**FI 316 3 credits****Financial Analysis**

The course will provide appropriately prepared students an opportunity to learn and apply techniques of financial analysis and to consider related issues in the management of working capital, capital assets, and asset financing. Learning is fostered by the student's rigorous involvement in the



analysis of case situations and the application of financial tools and concepts to their solution.

Prerequisite: AC 202. For Accounting and Finance Majors only or permission of instructor.

**FI 381 3 credits**

**Money, Banking, and Economic Activity**

The nature and functions of money and commercial banking and their historical development in the United States.

**FI 385 3 credits**

**Applied Capital Budgeting**

A study of theoretically valid and readily applied methods of capital budgeting for business and government organizations. Complexities such as risk, timing and measurement problems dealt with only briefly in introductory courses are given adequate attention. Capital budgeting considerations in government organizations, not presented in the current finance curriculum, will be discussed thoroughly.

**FI 397 3 credits**

**Business Cycles and Forecasting**

A study is made of the dynamic forces on economic activity. National income accounting and analysis, economic indicators and measures, forecasting for the economy of the firm, and problems of stability and growth are considered.

**FI 398 3 credits**

**Financial Institutions**

A detailed study of the operations of financial institutions and the interrelationships between their operations and economic activity. Emphasis is placed on the effect of economic forces on the operations of these institutions.

**FI 483 3 credits**

**Investments**

Method and techniques of determining investment merit of various types of securities are evaluated. Study of the place of bonds, preferred stocks and common stocks in various types of investment portfolios is made. The effect of the business cycle on investment policy will be examined and the importance of timing investment commitments will be stressed.

Prerequisites: FI 381, FI 315.

**FI 484 3 credits**

**Federal Tax Accounting**

To provide an overview of the federal, state and local tax laws as they apply to individuals and businesses. To discuss specific tax laws which

apply to individuals, partnerships and corporations with emphasis on tax planning rather than preparation of the specific tax forms.

**FI 485 3 credits**

**Seminar**

A conference course for students doing research or preparing thesis related to the field of Finance.

Prerequisite: Available to seniors majoring in Finance.

**FI 493 3 credits**

**Financial Management of Corporations**

This course is designed for advance work in the management of corporate funds. Selected topics from the various fields of financial activity with emphasis on trends, current problems and research are studied. The topics emphasized include: capital expenditure policies, long-term and short-term financing problems, dividend policies, mergers and consolidations, and trends in financial markets.

Prerequisites: FI 315, FI 483.

**FI 494 3 credits**

**International Financial Management**

This course provides a basic understanding of the forces that affect the relative value of currencies in international markets, and discusses the major problems encountered by the firm in financing international operations.

Prerequisites: EC 231 and 232, FI 315.

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## **Management Courses**

**MN 341 3 credits**

**Production Management**

The course acquaints the students with the basic principles and methods of production management and control as well as the qualitative and quantitative approaches to problem solving in the production management area.

**MN 342 3 credits**

**Time and Motion Study**

The course acquaints the business student with the basic principles and approaches to methods engineering, work simplification, job enrichment, time study and their relationship to wage payment systems and the cost elements.

**MN 345 3 credits**

**Manufacturing Services**

Emphasis will be placed on industrial procurement, production and inventory control, and consideration of the role of the computer in these areas.

Prerequisite: Upperclass standing; industrial experience; or a prior course in some type of industrial management.

**MN 372 3 credits**

**Managerial Economics**

The course introduces the student to the use of the tools of economic analysis in formulating and solving management problems and effectively integrates economic analysis and the management viewpoint.

**MN 373 3 credits**

**Human Relations in Business**

The course attempts to give the student a deeper insight into the need for understanding human characteristics as well as technological and economic concepts in building a sound management policy.

**MN 395 3 credits**

**Managerial Psychology**

Managerial Psychology is designed to acquaint the student with the human problems within the supervisory and managerial levels of a business. Extensive emphasis is placed on the psychology of the manager and the managed.

**MN 431 3 credits**

**Business Policy**

This course deals with upper-level management problems in business. It encompasses all basic business fields and gives the student an opportunity to develop managerial decision-making procedures and abilities.  
Prerequisite: Senior level standing.

**MN 432 3 credits**

**Administrative Practices**

The manager's administrative abilities and knowledge of his role as an administrator are often more important than technical knowledge and skills. Therefore, a wide range of administrative situations are examined through case and real-life studies.

**MN 461 3 credits**

**Industrial Management**

Industrial activities, interrelationships and essential principles for their coordination are examined in order that the student may get an overview of the scope of responsibilities involved.



**MN 462 3 credits****Management Policy**

This course gives special consideration to the policies of sales, procurement, personnel and finance. Problems involved in establishing responsibilities for the executive; plans of organization, facilities and techniques. Emphasis is placed on the case method of study.

**MN 481 3 credits****Management Seminar**

Readings and discussion of important research and literature in student's particular field of interest, culminating in a major written paper.

Prerequisite: Open to seniors in the Departments of Management, Accounting and Finance.

**MN 483 3 credits****Small Business Seminar I**

Through a cooperative arrangement, student teams do actual business consulting for real companies.

Prerequisite: Upperclass standing.

**MN 484 3 credits****Small Business Seminar II**

Additional actual contact with real businesses, but in the role of consultant to other student teams.

Prerequisite: MN 483.

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## **Marketing Courses**

**MK 321 3 credits****Principles of Marketing**

A basic understanding of the role and scope of responsibilities facing contemporary marketing management is the major objective of this course. Emphasis is placed on the integration of marketing principles into an organized approach for decision making.

**MK 330 3 credits****Promotional Strategy**

Emphasis is placed on developing a basic understanding of the factors affecting promotional decisions as well as the role of promotional effort in market strategy planning. The basic principles of advertising, sales promotion and personal selling are integrated.

Prerequisite: MK 321.

**MK 354 3 credits****Retail Management**

An examination of the basic concepts fundamental to understanding the retail environment and the operation of retail firms are covered.

**MK 358 3 credits****Fashion Merchandising**

Emphasis is placed on creating student awareness of the knowledge and skills which fashion buyers need to make decisions. The fashion operations of various retail stores are observed and analyzed.

**MK 360 3 credits****Industrial Marketing**

A study of contemporary market strategy techniques in industrial companies. Emphasis is placed on the case approach where students are provided an opportunity to develop strategies in response to given market opportunities and competitive behavior.

Prerequisite: MK 321.

**MK 410 3 credits****Consumer Behavior**

A study of consumer decision processes as a series of activities related to the purchase and consumption of goods. Emphasis is given to contemporary thought or the consumer problem-solving process, namely problem recognition, search, evaluation, commitment and post-purchase behavior.

Prerequisite: Senior level standing.

**MK 420 3 credits****International Marketing**

A systematic treatment of marketing on a global scale. Emphasis is placed on the study of the dimensions of foreign market environments, marketing across national boundaries and the management of marketing programs simultaneously in two or more national environments.

Prerequisite: Senior level standing.

**MK 422 3 credits****Marketing Management**

This course is based on the management point of view, being decision-oriented and analytical. It sets forth a definite way of surveying current developments in marketing practice, with the advantage of allowing the student freedom, via the case approach, in his choice of executive action.

Prerequisite: MK 321. Senior level standing in marketing.

**MK 431 3 credits****Advertising**

A detailed study is made of the principal form and applications of advertising alternatives as a part of overall market strategy planning. Considerable emphasis is also placed on applied problems which allow for student planning of advertising campaigns.

Prerequisites: MK 321, MK 330.

**MK 432 3 credits****Sales Management**

Sales programs must be formulated and then implemented. In this age of accelerating product complexity, this course will deal with the sales manager who must understand the importance of these major responsibilities.

Prerequisite: MK 321.

**MK 440 3 credits****Physical Distribution**

An examination of the management of marketing channel systems and subsystems, i.e., transportation, warehousing, inventory control, material handling, packaging, and location analysis. Contemporary thought on research techniques as applied to channel operations are reviewed.

Prerequisite: MK 321.

**MK 451 3 credits****Marketing Research**

An examination of the market research process as used in approaching contemporary marketing problems. Emphasis is placed on the current status of research techniques and their application.

Prerequisite: MK 321 and MA 231.

**MK 460 3 credits****Social Issues in Marketing**

An examination and appraisal of contemporary thought on the extent to which marketing activities influence the ethical and social values of society.

Prerequisite: Senior level standing in Marketing.



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## Human Resources Management

**IR 394 3 credits****Negotiations, Mediation and Arbitration of Collective Bargaining Agreements**

Student participation in case studies in resolving disputes and grievances in labor relations, including examination of the nature of collective bargaining practices and agreements and the arbitration process.

**IR 396 3 credits****History of Trade Unionism**

The history and current nature of organized labor; the structure, policies, and practices of modern labor unions.

**IR 421 3 credits****Labor Management**

This is a course dealing with the social background and present status of labor organizations. It emphasizes the many labor-management problems that are evident today and aims to help the student understand the various techniques employed in collective bargaining procedures.

**IR 422 3 credits****Personnel Management**

An exploration of that part of management devoted to a people-centered approach and its integration with overall goals of organization. Emphasis is placed on employment, compensation, and training and development of individuals.

**IR 462 3 credits****Manpower Resources**

A study of how to relate the human resources of organizations with the policies and practices of management. It emphasizes the need to motivate and develop people in the pursuit of organizational goals.

**IR 481 3 credits****Seminar**

A conference course for students doing research or developing a specialized interest related to the field of industrial relations. Frequent field trips and outside lecturers from business are involved.

**IR 482 3 credits****Seminar**

A continuation of IR 481.

Prerequisite: IR 481.



## Faculty and Fields of Interest

**Martin Bide** dyeing

**Frederick Ritz** weaving

**Edmund Dupre** finishing and printing

**William Silveira** yarn processing

**Yong Ku Kim** fiber physics

**Arthur Swaye** design

**Kenneeth Langley** microscopy and statistics

**Alton Wilson** design, nonwovens, testing

**Ronald S. Perry (chairperson)**  
textile chemistry

The future of the Textile Industry in the United States will depend significantly upon the quality of the technical and managerial leadership attracted to the industry. The technological, chemical and marketing advances of the industry in recent years have opened the door to many career opportunities.

Textiles also provide a unique opportunity for those who seek a lucrative profession. Today's modern textile industry has become a universe of diversification, where one can develop individual talent and specialize in aspects of manufacturing, chemistry, marketing, management, styling and design. Textiles have their application in every conceivable field of modern day living from the products we wear, to industry, the environment, medicine, and to our explorations in space and the oceans.

It is very encouraging that industry and government continue to have tremendous need for those who are educated in textile technology and textile chemistry. The opportunities for the graduating student are unlimited and present a challenging, exciting, and very rewarding future. More than ever, the textile student must enter the field with a mission to excel, if the U.S. industry is to compete effectively in world markets. It is the aim of the curriculum at SMU to develop students with the desire to contribute to the industry's future.



## Textile Science Programs

The Textile Sciences Department offers two programs leading to the Bachelor of Science Degree: Textile Technology and Textile Chemistry.

Textile Technology majors have a choice of options when they enter the junior year: Structural Science, Dyeing and Finishing, Business Administration, Fashion Buying and Merchandising or Retail and Merchandising (through SMU's Marketing Department which is not specifically textiles, but is a broad-based retailing and merchandising program), Mechanical Engineering Technology and Electrical Engineering Technology. The Structural Science option offers a more detailed study in the science of converting fibers into yarns and yarns into fabrics. The Dyeing and Finishing option provides a student with an excellent background in the science of textile structures as well as specialized instruction in the application of dyestuffs and chemical finishing agents such as permanent press, water repellents, and fire-retardants. The Business Administration option affords the student the opportunity to acquire in-depth knowledge of such subjects as marketing, finance or management. This option also better prepares the student for graduate study in Business Administration. With the Fashion Buying and Merchandising option, the eligible student spends three years at SMU and one at the Fashion Institute of Technology in New York City. It is important to note that students must be accepted by F.I.T.'s admission requirements and pay their tuition fees. This program allows a broad exposure to the principles of the retailing and merchandising of textile apparel goods. The general Retail and Merchandising option is available through the Marketing Department at SMU for a limited number of textile students. The Mechanical Engineering Technology option concentrates on looking at the textile industry via an engineering approach, especially in the area of material sciences. The option in Electrical Engineering Technology enables the student to gain specialization in the application to textile production of electronics, digital logic and design, control systems, and computers.

The Textile Chemistry program gives the student a comprehensive background in the field of chemistry with specialized instruction in textile chemistry. The Textile Chemistry Program will prepare the student for a textile career in quality control, production, research and development or chemical sales.

Two graduate programs, one leading to the Master of Science Degree in Textile Sciences and the other in Textile Chemistry, are offered by the Textile Sciences Department. Details of these are listed in the Bulletin of the Graduate School.

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### **General Requirements**

All students in the Textile Sciences Department are required to take a minimum of 12 credits in the humanities and social sciences. The humanities and social sciences requirements must be evenly divided in credits.

Courses in the humanities may be elected from the offerings of the department of English, Foreign Literature and Languages, Philosophy or in the College of Visual and Performing Arts (except studio and design courses, chorus or band courses). Courses satisfying the requirements in the social sciences can be taken in the departments of Economics, Political Science, Psychology and Sociology. Courses offered by the department of History can be chosen to satisfy either the humanities or the social sciences requirements. For students not selecting the Business Administration option, certain courses in management may satisfy social science requirements.

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### **Department Policy Statements**

1. Please be advised that transfer students must either take the Textile Orientation course or a textile elective course to satisfy the 6 credit requirement for textile orientation needed for graduation.
2. Contract Learning credits are limited to 3 credits toward graduation requirements. Also, these 3 credits cannot be used to satisfy mandatory textile courses but only for open textile electives or other courses offered outside of the department.
3. Students must declare an option in the Textile Technology program by the spring registration period of the sophomore year. Changes in options must be submitted and approved in writing by the department Chairperson.
4. Transfer students should be aware that scheduling problems will very likely occur because most transfer students try to schedule courses between various years such as freshman and sophomore years. The University schedules courses to avoid conflicts in any one year and for each major and option. It may be possible to schedule courses to avoid conflicts between years of study. Therefore, it is the responsibility of transfer students to work out their schedule problems. These scheduling problems may delay meeting graduation requirements.

Transfer students should try to get on track with the curriculum as soon as possible.

5. It is the students' responsibility to follow their course program semester by semester as scheduled for their major and year of graduation.

If a student fails to take a course that should be taken in a particular semester, then the student will have to bear the consequences, including the possibility of not graduating as scheduled.

## Textile Chemistry Major

The Textile Chemistry curriculum is designed to give the student a thorough preparation in basic chemistry in addition to specialized instruction in textile chemistry. Industry employs graduates in this field for positions in quality control, production, research and development, sales and purchasing.

### Requirements

First Year			Semester Credits:	First	Second
CH	151	152	Principles of Modern Chemistry	3	3
CH	165	166	Introduction to Experimentation	2	2
MA	111	112	Analytic Geometry and Calculus I, II	4	4
ENG	101	102	Freshman English	3	3
			Humanities or Social Science	3	3
				15	15

Second Year			Semester Credits:	First	Second
CH	251	252	Organic Chemistry	3	3
CH	265	266	Organic Chemistry Laboratory	2	2
MA	211		Analytic Geometry and Calculus III	4	
MA	212		Differential Equations		3
PH	111	112	Physics I, II	3	3
PH	121	122	Physics Laboratory (bi-weekly)	1	1
			Literature	3	3
TC	302		Elementary Dyeing		3
				16	18



Third Year			Semester Credits:	First	Second
CH	305	Modern Methods of Chemical Analysis	3		
CH	307	Procedures of Chemical Analysis	2		
CH	315	316 Physical Chemistry I, II	4		4
CH	320	Computer Programming in Chemistry*			3
PH	211	Physics III	3		
PH	221	Physics Laboratory (bi-weekly)	1		
		Unspecified Textile Electives			6
		Humanities or Social Sciences			3
TC	421	Chemical Technology of Finishing I	3		
			16		16
Fourth Year			Semester Credits:	First	Second
TC	410	Polymer Chemistry			3
TC	401	Advanced Dyeing	3		
TT	462	Microscopy	3		
TC	411	Textile Printing			3
TC	422	Chemical Technology of Finishing II			3
TC	442	Chemistry of Fibers	3		
TC	431	Industrial Chemical Analysis	3		
		Humanities or Social Sciences	3		
TT	431	Physical Testing			3
			15		12

Total credits: 123

\*May not be offered every year.

## Textile Technology Major

### Requirements

All Textile Technology students must take a CORE PROGRAM of studies along with one of six (6) OPTION AREAS of study.

The options available to students are:

- Structural Sciences
- Dyeing and Finishing
- Business Administration
- Retail and Merchandising\* or
- Fashion Buying and Merchandising\*\*
- Mechanical Engineering Technology
- Electrical Engineering Technology

\*Through the Marketing Department at Southeastern Massachusetts University

\*\*Through a cooperative program with the Fashion Institute of Technology in New York City

### Core Program

Textile Courses			Credits
TT	104	Textile Orientation	6
TC	325	Textile Chemistry I	3
TC	211, 212	Fabric Technology I, II	6
TT	221	Fabric Design I	3
TC	462	Survey of Man-Made Fibers	3
TT	201, 202	Yarn Technology I, II	6
TT	431	Physical Testing	3
TT	302	Elementary Dyeing	3
TC	421	Chemical Technology of Finishing I	3
TT	473	Non-woven Fabric Structure	3
TT	231	Knit Technology I	3
TT	411	Statistical Methods and Quality Control	3
			45
Non-Textile Courses			Credits
ENG	101 102	Freshman English	6
ENG	266	Professional Writing	3
CH	101 102	General Chemistry	6
CH	103 104	General Chemistry Lab	2
PH	101 102	Introduction to Physics I, II	6
PH	103 104	General Physics Lab	2
MA	101 102	Elements of College Mathematics I, II*	6
BA	112	Introduction to Computer Technology*	3
			15
			49
Total CORE credits: 94			

\*Engineering Option students must substitute the following:

MA	105 106	Technical Calculus I, II	(6 credits)
CIS	261	Principles of Computer Programming	(3 credits)

†EC 231, 232 Economics I, II required social science courses for Retail and Merchandising as well as Business Administration Option students.

General Psychology (PY 101) is a required social science for Retail and Merchandising students.

Of the total 15 credits assigned to humanities/social sciences, nine credits must be in the social sciences.

### First Year (All Textile Technology Students)

First year				Semester Credits:	First	Second
ENG	101	102	Freshman English		3	3
MA	101	102	Elements of College Mathematics I, II*		3	3
CH	101	102	General Chemistry		3	3
CH	103	104	General Chemistry Lab		1	1
TT	104		Textile Orientation		3	3
			Humanities/Social Sciences**		3	3
					16	16
					(17)**	(17)**

\*Engineering option students to substitute MA 105, 106 Technical Calculus I, II (6 credits)

\*\*Mechanical Engineering Technology option students take Physics and Physics Laboratory in place of the Humanities/Social Sciences requirements which results in 17 credit semesters:

PH	101	102	Introduction to Physics I, II	(6 credits)
PH	103	104	General Physics Laboratory	(2 credits)

### Structural Sciences Option

Second Year				Semester Credits:	First	Second
TT	325		Textile Chemistry I		3	0
TC	211	212	Fabric Technology I, II		3	3
ENG	266		Professional Writing		0	3
PH	101	102	Introduction to Physics		3	3
PH	103	104	General Physics Laboratory		1	1
TC	302		Elementary Dyeing		0	3
BA	112		Introduction to Computer Technology		3	0
			Humanities/Social Sciences		3	3
					16	16



Third Year			Semester Credits:	First	Second
TT	321	Fabric Structure		0	3
TT	231	232	Knit Technology I, II	3	3
TT	311		Fabric Technology III	3	0
TT	201	202	Yarn Technology I, II	3	3
TT	221	222	Fabric Design I, II	3	3
TT	473		Non-woven Fabric Structure	0	3
TC	462		Survey of Man-made Fibers	3	0
			Electives*	3	3
				18	18

Fourth Year			Semester Credits:	First	Second
TC	421		Chemical Technology of Finishing I	3	0
TT	301		Yarn Technology III	3	0
TT	411	412	Statistical Methods and Quality Control	3	3
TT	481		Plant Engineering	3	0
TT	431		Physics Testing	0	3
			Electives*	3	6
				15	12

Total credits: 127

\*Distribution requirements for 15 elective credits:

Open Electives	6
Textile Electives	6
Humanities/Social Sciences	3

### Business Administration Option

Second Year			Semester Credits:	First	Second
TC	325		Textile Chemistry	3	0
TC	211	212	Fabric Technology I, II	3	3
ENG	266		Professional Writing	0	3
PH	101	102	Introduction to Physics I, II	3	3
PH	103	104	General Physics Lab	1	1
TC	302		Elementary Dyeing	0	3
BA	112		Introduction to Computer Technology	3	0
			Humanities/ Social Sciences	3	3
				16	16

Third Year			Semester Credits:	First	Second
TT	231	232	Knit Technology I, II	3	3
TT	201	202	Yarn Technology I, II	3	3
TT	473		Non-woven Fabric Structure	0	3
TT	221		Fabric Design I	3	0
TC	462		Survey of Man-made Fibers	3	0
			Electives*	3	3
			B.A. Courses**	3	6
				18	18

Fourth Year			Semester Credits:	First	Second
TC	421		Chemical Technology of Finishing I	3	0
TT	411	412	Statistical Methods and Quality Control	3	3
TT	481		Plant Engineering	3	0
TT	431		Physical Testing	0	3
			Electives*	3	0
			B.A. Courses**	3	6
				15	12

**Total credits: 127**

\* Distribution requirements for 9 elective credits:

Open Electives	3
Textile Electives	3
Humanities/Social Sciences	3

\*\* A module of business courses must be selected with the advice and consent of the Textile Department and the appropriate Business Department prior to registering for the fall semester of the junior year.

### **Business Electives**

The following is a listing of the approved Business Administration courses available, other courses available upon approval of the chairperson of the Departments of Accounting and Finance and Management and the student's advisor.

Principles of Marketing  
 Production Management  
 Human Relations  
 Labor Management  
 Industrial Management  
 Economics I and II  
 Time and Motion Study  
 Managerial Economics  
 Principles of Finance

Money and Banking  
Public Finance

Economics may also satisfy Humanities and Social Sciences requirements.

### Dying and Finishing Option

Second Year				Semester Credits:	First	Second
TC	325	326	Textile Chemistry I, II		3	3
TT	211	212	Fabric Technology I, II		3	3
ENG	266		Professional Writing		0	3
PH	101	102	Introduction to Physics I, II		3	3
PH	103	104	General Physics Lab		1	1
TC	302		Elementary Dyeing		0	3
			Humanities/Social Sciences		6	0
					16	16

Third Year				Semester Credits:	First	Second
TT	322		Fabric Structure		0	3
BA	112		Introduction to Computer Technology		3	0
TT	201	202	Yarn Technology I, II		3	3
TT	473		Non-woven Fabric Structure		0	3
TC	462		Survey of Man-made Fibers		3	0
TT	221		Fabric Design I		3	0
TT	462		Microscopy		3	0
			Electives*		3	9
					18	18

Fourth Year				Semester Credits:	First	Second
TT	421	422	Chemical Technology of Finishing I, II		3	3
TT	231		Knit Technology I		3	0
TT	411	412	Statistical Methods and Quality Control		3	3
TT	481		Plant Engineering		3	0
TT	431		Physical Testing		0	3
TT	411		Textile Printing		0	3
TT	401		Advanced Dyeing II		3	0
					15	12

Total credits: 127

\*Distribution requirements for 12 elective credits:

Open Electives	6
Textile Electives	3
Humanities/Social Sciences	3



### Retail and Merchandising Option

Second Year			Semester Credits:	First	Second
TC	325		Textile Chemistry	3	0
TC	211	212	Fabric Technology I, II	3	3
ENG	266		Professional Writing	0	3
PH	101	102	Introduction to Physics I, II	3	3
PH	103	104	General Physics Lab	1	1
TC	302		Elementary Dyeing	0	3
BA	112		Introduction to Computer Technology	3	0
			Humanities/Social Sciences	3	3
				16	16

Third Year			Semester Credits:	First	Second
TT	231	232	Knit Technology I, II	3	3
TT	201	202	Yarn Technology I, II	3	3
TT	221		Fabric Design I	3	0
TC	462		Survey of Man-made Fibers	3	0
			R&M Courses*	6	9
			Humanities/Social Sciences	0	3
				18	18

Fourth Year			Semester Credits:	First	Second
TC	421		Chemical Technology of Finishing I	3	0
TT	431		Physical Testing	0	3
TT	462		Microscopy	3	0
TT	473		Non-woven Fabric Structure	0	3
TT	411		Statistical Methods and Quality Control	3	0
			Specified Elective	3	0
			R&M Courses*	3	6
				15	12

**Total credits: 127**

\*Twenty-four credits to be selected from the following list in order to satisfy the Retail and Merchandising option:

			Credits
AC	101	Accounting I	3
MK	431	Advertising	3
MN	395	Managerial Psychology	3
MK	354	Retail Management	3
MK	358	Fashion Buying and Merchandising	3
MK	410	Consumer Behavior	3

BA	321	Quantitative Business Analysis	3
MK	321	Principles of Marketing	3
MK	330	Promotional Strategy	3

### Mechanical Engineering Technology Option

Second Year			Semester Credits:	First	Second
MA	203	Technical Calculus	3	0	
ENG	266	Professional Writing	0	3	
TM	231	232 Mechanics I, II	3	3	
TM	101	Graphics I	0	2	
TC	325	Textile Chemistry I	3	0	
TT	211	212 Fabric Technology I, II	3	3	
CS	261	Principles of Computer Programming	0	3	
TC	302	Elementary Dyeing	0	3	
		Humanities/Social Sciences	6	0	
			18	17	

Third Year			Semester Credits:	First	Second
TT	201	202 Yarn Technology I, II	3	3	
TT	221	Fabric Design I	3	0	
TM	302	Kinematic Analysis of Machines	3	0	
TM	306	Mechanics of Materials I	3	0	
TM	222	Elements of Materials Science	0	3	
TC	462	Survey of Man-made Fibers	3	0	
TT	473	Non-woven Fabric Structure	0	3	
		Electives*	0	6	
			15	15	

Fourth Year			Semester Credits:	First	Second
TT	431	Physics Testing	0	3	
TT	411	412 Statistical Methods & Quality Control	3	3	
TC	421	Chemical Technology of Finishing I	3	0	
TM	412	Instrumentation and Control Circuits	3	0	
TT	231	232 Knit Technology I, II	3	3	
		Electives	3	6	
			15	15	

Total credits: 129

\*Distribution requirements for 15 elective credits:

Open Electives	6
Textile Electives	6
Humanities/Social Sciences	3

### Electrical Engineering Technology Option

Second Year			Semester Credits:	First	Second
CIS	261		Principles of Computer Programming	0	3
PH	101	102	Introduction to Physics I, II	3	3
PH	103	104	General Physics Lab I, II	1	1
MA	203		Technical Calculus III	3	0
ET	221	222	Electric Circuits I, II	3	3
ET	251	252	Electrical Technology Lab I, II	1	1
TC	325		Textile Chemistry I	3	0
TT	211	212	Fabric Technology I, II	3	3
TC	302		Elementary Dyeing	0	3
				17	17

Third Year			Semester Credits:	First	Second
ENG	266		Professional Writing	0	3
TT	201	202	Yarn Technology I, II	3	3
TT	221		Fabric Design I	3	0
TC	462		Survey of Man-made Fibers	3	0
ET	315		Instrumentation	3	0
EE	361		Digital Logic and Design	0	3
TT	473		Non-woven Fabric Structure	0	3
			Electives*	3	6
				15	18

Fourth Year			Semester Credits:	First	Second
TC	421		Chemical Technology of Finishing I	3	0
TT	411	412	Statistical Methods and Quality Control	3	3
TT	431		Physical Testing	0	3
TT	231	232	Knit Technology I, II	3	3
ET	341		Electromechanical Energy Conversion	3	0
ET	485		Feedback Controls		
			or	0	3
CIS	261		Principles of Computer Programming		
			Electives*	3	3
				15	15

**Total credits: 129**

\*Distribution requirements for 15 elective credits:

Humanities/Social Sciences	9
Open Electives	6



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**Textile Sciences Electives**

Elective courses may be selected from any of the Textile Chemistry or Textile Technology courses listed provided the prerequisites if any have been met. Courses specified for non-textile majors may not be taken.

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**Textile Chemistry Courses****TC 302 3 credits****Elementary Dyeing**

This course consists of a study of the preparation of textile fibers for dyeing and the application of the various classes of dyestuffs to textile fibers.

**TC 303 3 credits****The Art of Dyeing with Natural Dyes**

The natural dyes used by our ancestors are discussed. Methods relating to the extraction and preparation of the dyes from woods, bark and insects are studied. Laboratory work consists of the preparation of the dye-baths and the actual application of the dyes to fabrics. Logwood, cochineal, madder, fustic, indigo, quercitron, osage orange and hypernic are some of the dyes utilized.

Cannot be used to satisfy requirements for students in the Dyeing and Finishing option.

**TC 325 3 credits****Textile Chemistry I**

This is an introductory course in the organic chemistry of textile fibers, polymers, dyestuffs, surfactants, bleaching, and other organic chemicals used in the textile industry.

Prerequisites: CH 101, 102.

**TC 326 3 credits****Textile Chemistry II**

An introduction to the fundamental chemistry and principles of dyeing, printing and finishing. All phases of textile wet processing will be covered in order to provide a basic understanding of these various phases of textiles. A continuation of TC 325.

**TC 401 3 credits****Advanced Dyeing**

Studies are conducted on the application of dyestuffs to synthetic fibers and mixed fiber combinations. Color matching and experimental dyeing on pilot plant equipment are included.

Prerequisite: TC 302.

**TC 402 3 credits****Advanced Dyeing**

This course is a continuation of TC 401.

Prerequisite: TC 401.

**TC 410 3 credits****Polymer Chemistry**

The physical and organic polymers, including a consideration of non-bonding forces, spectroscopic methods of structure determination, structure and property correlations, fractionation, thermodynamics, and methods of molecular weight determination for polymers in solution; the kinetics of condensation and addition polymerization as applied to polymers and copolymers, mechanism of free radical and ionic polymerization, stereo-specific polymers, the chemistry of the more common polymers systems, and preparation of their corresponding monomers.

Prerequisites: CH 115, 116.

**TC 411 3 credits****Textile Printing**

This course covers methods of printing and the preparation of printing pastes. Direct, discharge and resist printing methods are included. Prerequisites: TC 302, 325.

**TC 421, 422 3 credits****Chemical Technology of Finishing I, II**

The application of the various classes of textile finishes to fabrics are studied. Attention is centered on the standard finishes used in modern practice.

Prerequisite: TC 302, 305

**TC 431 3 credits****Industrial Chemical Analysis I**

This course is devoted to the chemistry of products associated with the textile industry. Methods of analysis of the A.A.T.C.C. and A.S.T.M. and other specialized procedures are followed. The testing of dyestuffs and fabric blends is included.

**TC 442 3 credits****Chemistry of Fibers**

The chemistry of natural and synthetic fibers. Studies are made concerning the relationship between the chemical structure and physical properties of fibers.

Prerequisite: CH 251, 252, 265, 266, TC 325.

**TC 462 3 credits****Survey of Man-Made Fibers**

This course is designed to familiarize the student with the physical and chemical properties of the man-made fibers. Coverage includes a survey of the various manufacturing processes and the utilization of these newer synthetics in the production of fabrics.

**TC 485 3 or 6 credits****Introduction to Research**

Textile Chemistry students accepted for study by a faculty research advisor will be assigned a topic for investigation. It is the aim of this course to introduce the student to research and develop his proficiency in the analysis, solution and presentation of his investigating work.

Prerequisite: Senior standing.

**TC 500 10 credits****Thesis**

An original research project related to the areas of chemistry, textile chemistry or dyeing is required. Approval of the completed project must be obtained from the director of the thesis, the departmental chairman and the director of graduate studies. Three typewritten copies of the thesis must be submitted in final form before the degree is awarded.

**TC 501 4 credits****Chemistry of Dyestuffs**

This course deals with the chemistry and technology of dyestuffs. The raw materials, intermediates and finished dyestuffs are studied in detail. The effect of the construction on color and fastness properties is emphasized. Theoretical as well as practical and economic points of view are presented. The preparation of typical intermediates and dyestuffs is carried out in the laboratory.

**TC 502 3 credits****Physical Chemistry of Dyeing**

This is a lecture course concerned with the physiochemical theories of the application of dyestuffs to textile and related materials, including the thermodynamics and kinetic principles involved.

**TC 503 3 credits****Physical Chemistry of Surface-Active Agents**

This lecture course is concerned with the physiochemical principles involved in surface-active agents. The chemical nature of the agents is studied and related to their properties. The technical uses are evaluated on this basis.



**TC 505 3 credits****Processing of Synthetic Fibers**

This course is concerned with advanced dyeing and finishing methods of polyester, polyamide, acrylic, acetate and viscose fibers, separate and blended in combination with other fibers. Bleaching formulations, color matching and shade-fastness are studied.

**TC 506 3 credits****Survey of Current Textiles**

Studies in this course include a survey of the fundamental reference works and literature of textile chemistry. Timely reports are required concerning recent advances in the manufacture, modification, dyeing and finishing of synthetic and blends.

**TC 507 3 credits****Textile Microscopy and Photomicrography**

Instruction and problems in this course include the use of the pclasses of dyed backgrounds is investigated. Attention is given in dyeing ground shades for discharge printing. Special logical condition of yarns and fabrics. Recording of data by photomicrography is included.

Prerequisite: TT 462.

**TC 508 3 credits****Textile Printing Advanced**

The more complex styles of printing, discharge and resist, are covered in detail. The preparation of white and colored print paste for alleffects such as Plisse, Burn-out and Vigoreaux styles are considered.

Prerequisite: TC 411.

**TC 509 3 credits****Chemical Technology of Finishing**

This course is more comprehensive than that given in the undergraduate course. Greater detail is provided concerning the mechanisms used in the application of specialized finishes and the chemical reactions involved.

**TC 510 3 credits****Polymer Chemistry**

The physical and organic chemistry of monomers and polymers, including a consideration of non-bonding forces, spectroscopic methods of structure determination, structure and property correlations, fractionation, thermodynamics, and methods of molecular weight determination for polymers in solution; the kinetics of condensation and addition polymerization as applied to polymers and copolymers, mechanism of free radical and ionic polymerization, stereo-specific polymers, the chemistry of the more common polymers systems, and preparation of their corresponding monomers.

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## **Textile Technology Courses**

### **TT 103 3 credits**

#### **Textile Orientation**

This course is designed to cover basic theory in textile science, describe the activities of the industry as it may relate to job placement, and designed to give exposure to all areas of advanced study within the Textile Technology Program.

### **TT 105 3 credits**

#### **Fundamentals of Textiles**

This course has been designed to broaden the student's understanding of textiles and afford the individual a workable knowledge as a consumer of textile products.

Emphasis is placed on the fundamentals of fibers, yarns, and fabrics, their properties, usage, quality aspects, and relationship to the finished product. The manufacturing processes are considered only to the degree necessary for the student to better compare and comprehend the textile products discussed. Federal legislation, as it pertains to textiles, will also be given emphasis in order to fulfill the aims of the course. Prerequisite:None. It is open to all University students with exception of Textile Technology and Textile Design majors.

### **TT 201-202 3 credits**

#### **Yarn Technology**

Consideration is given to a fundamental understanding of the cotton fiber, its growth, classification, and other essential material. The course then introduces the student to the theoretical and technological concepts of processing on the cotton system, with emphasis on the initial operations during the first semester.

A continuation into similar concepts employed during the remaining operations of yarn processing is emphasized during the second semester.

Historical basis for processing changes and modernization is also considered.

Prerequisites: For TT 201: TT 104 or consent of instructor; PH 111, 112, 121, 122. For TT 202: TT 201.

**TT 211 3 credits****Fabric Technology I**

This course consists of a study of the fundamentals and principles of materials preparation prior to weaving. The various methods and equipment involved in the winding, warping and slashing processes are discussed along with problems which may arise concerning the processes.

**TT 212****3 credits****Fabric Technology II**

This course is a continuation of TT 211 and involves the fundamentals and principles of the mechanisms related to the fabrication of materials by the process of weaving. Basic cam systems, dobby mechanism and semi-automatic motions are discussed and observed in operation.

Prerequisite: TT 211.

**TT 221 3 credits****Fabric Design I**

A study is made of the fundamental principles of fabric construction and weave formation of basic and staple fabrics. Instruction is given in the physical analysis and design techniques essential to the reproduction and creation of woven fabrics.

Prerequisite: TT 104 or consent of instructor.

**TT 222 3 credits****Fabric Design II**

A continuation of TT 221.

**TT 225 3 credits****Design and Structure I**

This is a course in the technical procedures which apply to weave formation and fabric construction including a survey of all significant terms pertaining to the area of study. For Textile Design students.

**TT 226 3 credits****Design and Structure II**

Continuation of TT 225.

**TT 231 3 credits****Knitting Technology I**

A basic study is made of the principles of mechanisms related to the fabrication of materials by the process of knitting. Machine and motion capabilities and applicable mathematics are studied. The analysis and creation of fabric designs and patterns are also considered.



**TT 232 3 credits****Knitting Technology II**

A continuation of TT 231.

**TT 301 3 credits****Yarn Technology III**

Discussions of the stress-strain recovery properties of fibers and their relation to processing and product characteristics. Blends, blend systems, and the processing of blend and 100% synthetic staple material into yarns is also emphasized. Other selected topics will also be considered.

Prerequisite: TT 201, 202; TC 462.

**TT 302 3 credits****Yarn Technology IV**

Discussions on the theories and processing procedures for the manufacturing of such yarns as textured, stretch and high-bulk. Student presentation of assigned topics concerning trends and the latest developments in fiber, yarns, and processing. Written papers on appropriate topics will be assigned.

Prerequisite: TT 301.

**TT 311 3 credits****Fabric Technology III**

Comprehensive studies are made of more complicated mechanisms related to various types of weaving equipment. The design, applicable calculations, capabilities, timing, and settings on the multiple mechanical devices are explored and studied.

Prerequisite: TT 212.

**TT 312 3 credits****Fabric Technology IV**

A continuation of TT 311.

**TT 319 3 credits****Synthetic Fiber Processes**

This course is concerned with the synthesis of polymeric materials and their extrusion into films and fibers. Manufacture of the major synthetic fibers, namely polyamide, polyester, acrylics and polypropylene is discussed in depth. Newer fibers such as those derived from aromatic polyamides are also covered. This course also deals with the relative merits of the various fibers in terms of economics and performance.

**TT 321 3 credits****Fabric Structure**

A continuation of TT 221-222. More complex fabric constructions and patterns are pursued including technology related to and required for the reproduction and creation of fabrics in the areas of multiple yarn system and three dimensional characteristics and properties. Associated yarn and fabric mathematics are also included.

Prerequisite: TT 222.

**TT 322 3 credits****Fabric Structure**

This is a course for students in the Dyeing and Finishing Minor. It covers topics such as the construction of fabrics and theory of fabric properties influenced by dyeing and finishing techniques. An emphasis is placed upon the analysis of fabric defects and defect evaluation programs currently applied in the industry.

Prerequisite: TT 222, 211, 201, 104.

**TT 331 3 credits****Textile Technology**

This is a course for Textile Design students covering the theory of procedures employed in the processing of raw materials into yarns, including natural and manufactured types of fibers.

**TT 332 3 credits****Textile Technology**

This is a course in the theory of material fabrication, covering principally the weaving process in its variations and capabilities as related to the application of fabric design. For students majoring in Textile Design.

**TT 341 3 credits****Design and Structure III**

This is an extension of TT 225-226 covering more complex fabric patterns and construction. It includes the analysis, reproduction, and creation of multiple-yarn, three-dimensional, and Jacquard type fabrics. For Textile Design students.

**TT 342 3 credits****Design and Structure IV**

A continuation of TT 341.

Prerequisite: TT 341.

**TT 352 3 credits****Seminar**

Students will write and present papers or aspects of a subject chosen for the semester.

Prerequisite: Permission of instructor.

**TT 405 3 credits****Textile Merchandising and Marketing**

The lectures cover case histories and general discussions of the following subjects: the marketing of textile fibers; yarns; cloth; the influence of style and fashions on textile industry products; also price policies and other problems common to the textile industry.

**TT 411 2-3 credits****Statistical Methods and Quality Control**

A study of the statistical methods used in the textile industry to analyze test data, design experiments, improve control quality, and study process capability.

**TT 421 3 credits****Design and Structure**

Design principles and techniques are applied to the reproduction and creation of Jacquard-type fabrics. This includes the development of the pattern sketch and painted design and the transfer of same for technical application in fabric formation. A study of novelty and textured yarns is included.

Prerequisite: TT 321 or TT 322

**TT 431 3 credits****Physical Testing**

College level material is introduced to the students to enlighten textile science majors as to standard physical examinations of fibers, yarn, and fabrics for research and quality control purposes.

Physical Testing concepts and testing equipment will be discussed and operated in the coordinated laboratory to examine more important and common testing methods for quality acceptance of textile materials.

Prerequisite: TT 104, 201, 211, 221.

**TT 452 3 credits****Quality Control**

Studies are made of industrial quality control by statistical methods as applied to manufacturing processes. The methods of data analysis, inspection methods, determination of sample size, and the construction of control charts are investigated.

Prerequisite: TT 431.



**TT 462 3 credits****Microscopy**

Instruction is given in using the optical microscopy in relation to fiber identification and structure, composition of blends, physical, chemical, and biological condition of fibers and yarns. Students are taught the application of micrometers for length, diameter, and area measurements which is a prerequisite for recording of data by photomicrography.

**TT 470 3 credits****Advanced Knitting Technology**

This course consists of a study of knit fabrics made on Raschel and Warp knitting machines, together with the creation of new designs and the formation of many types of webbing by the utilization of various types of yarns. Charts are made of the sample to indicate the variances in fabric reactions from fine gauge knit lace to course webbings. Finishing requirements of these particular fabrics are studied.

**TT 472 3 credits****Fiber Technology**

The subject matter of this course covers the origin, history and physical properties of all fibers both natural and synthetic. In addition, the manufacture of and the use of textiles of the synthetic fiber is discussed in detail.

**TT 473 3 credits****Nonwoven Fabric Technology**

This is a course which involves the study of unconventional methods of fabric production. Theory and practicality are to be dealt with in the areas of nonwoven processing using chemical and mechanical means, tufting, bonding and lamination of composite fabrics. Emphasis will be placed on fiber and machinery selection.

Prerequisite: TT 104, 211, 201, 221.

**TT 481 3 credits****Plant Engineering**

General consideration is given to the design of a new textile mill; multi-story vs. single-story; problems in construction; slow-burning vs. fire-proof, windowless construction, flow diagrams, requisite applied engineering mathematics will be intensively pursued.

**TT 482 3 credits****Fabric Research Development and Design**

This course correlates properties of textile materials, engineering principles in textile processing, and the design of fabric structures with the desired properties for a particular functional use which would relate to stress-strain, dimensional stability, and other characteristics pertaining to the behavior of the finished product.

**TT 485 3 or 6 credits****Introduction to Research**

Students accepted for study by a faculty research advisor shall be assigned a topic for investigation. It is the aim of this course to introduce the student to research and develop his proficiency in the solution, analysis, and presentation of his investigating work. A maximum of 6 credits can be obtained.

Prerequisite: Senior standing.

**TT 486 3 or 6 credits****Introduction to Research**

A continuation of TT 485.

**TT 492 3 credits****Textile Cost Accounting**

This course analyzes the principles and problems basic to textile costing; basic cost concepts; cost problems; materials, labor and manufacturing costs; textile fiber and supplies purchasing; spinning mill costs; weaving mill costs; finishing mill cost problems, textile marketing costs; financial statements.

**TT 500 8 credits****Thesis**

The thesis requirement may be fulfilled in the textile sciences or may be of an interdisciplinary nature; in the latter instance, however, the emphasis must be on some aspect of textile science.

It is expected that those students with an appropriate undergraduate degree in textiles, will undertake a thesis project which will demonstrate ability and proficiency in the solution, analysis, and presentation of an original research topic.

Students with an undergraduate specialty in an area other than textiles have the opportunity to couple this knowledge with textiles in either a scientific, theoretical or a more applied project approach to fulfilling the thesis requirement.

Thesis will be conducted under the supervision of a faculty advisor. An oral examination, in defense of the thesis, will be required.

Prerequisite: advanced graduate standing.

**TT 501 3 credits**

**Yarn Technology**

This course is concerned with the aspects of yarn processing which affect the properties of the product during the various stages of manufacturing. Students will be required to exhaust reference material as a preliminary to the completion of written reports on subject matter assigned. In an endeavor to familiarize the student with research procedures and the evaluation of results, actual project reports will be studied.

**TT 502 3 credits**

**Yarn Technology**

A continuation of TT 501.

**TT 503 1 credit**

**Research Techniques**

A course designed to aid the student in better understanding research approach and techniques. To develop an insight as to the evaluation of research results. A proposal on an original research topic must be submitted and approved.

Prerequisite: advanced graduate standing.

**TT 504 3 credits**

**Graduate Seminar**

Student discussions on selected topics will be carried out under the supervision of a faculty member. Written papers to be submitted on those topics assigned. Prerequisite: graduate standing.

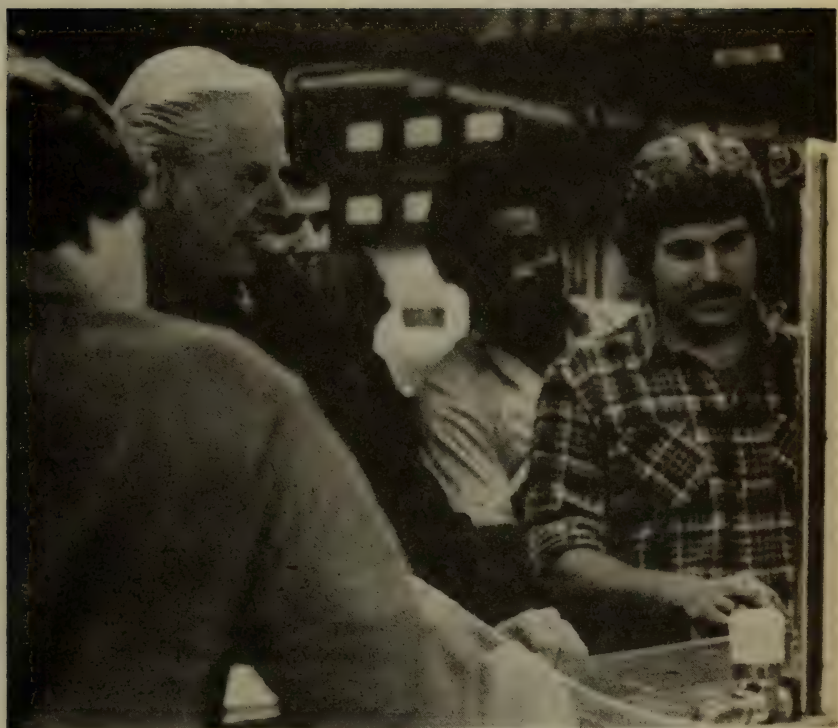
**TT 504 3 credits**

**Graduate Seminar**

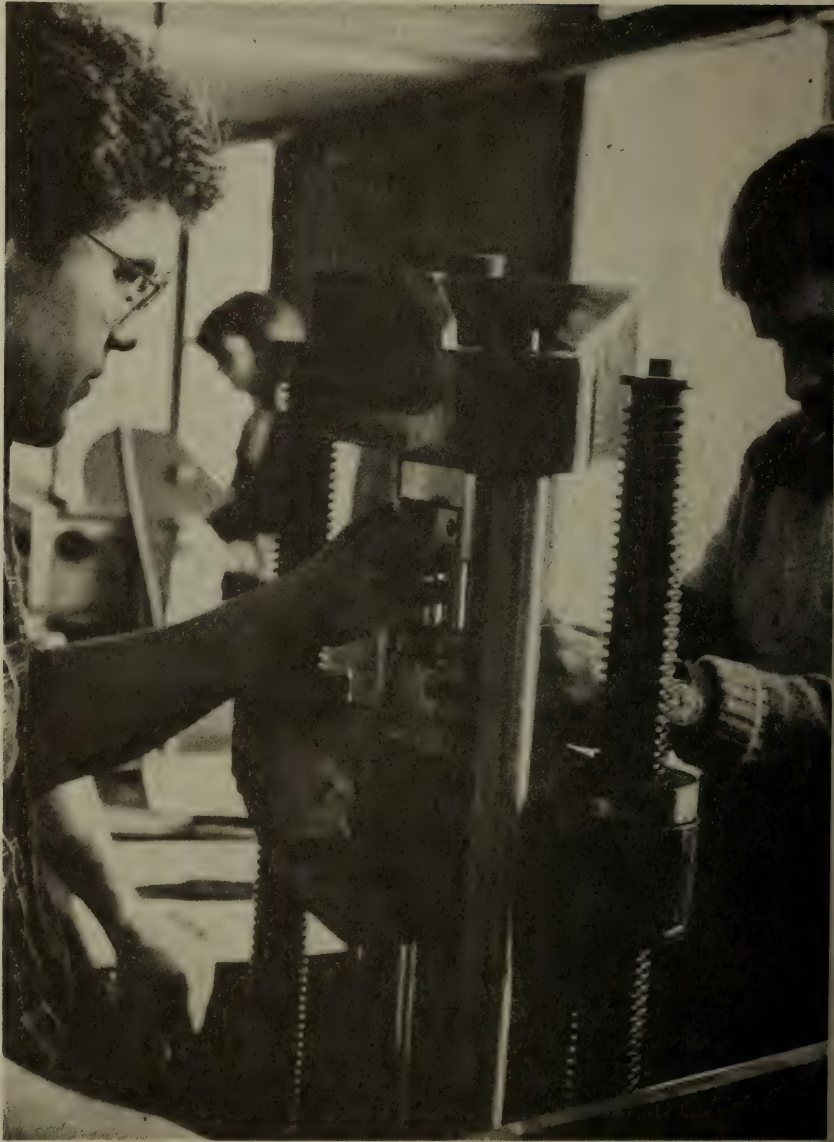
Student discussions on selected topics will be carried out under the supervision of a faculty member. Written papers to be submitted on those topics assigned.

Prerequisite: graduate standing.





# College of Engineering



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The College of Engineering offers programs leading to the B.S. degree in five engineering fields and in two specialties of engineering technology. All these programs build on a foundation of basic sciences, humanities and social sciences, mathematics, and engineering science to provide in the final years an experience in design so important in the problem-solving expected in the technological professions. Because these professions must respond to frequent new technological developments, the academic programs are continually revised to keep them up-to-date.

While the programs of the College of Engineering have common elements, each represents a different career objective, as indicated in the following descriptions of programs. Students undecided about a major within these technological programs may postpone a decision until the end of the first year of study. Students with questions about career choice are invited to consult with the Dean of Engineering.

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### **Humanities and Social Science Requirements for Engineering and Engineering Technology Programs**

The College of Engineering requires that all students complete 18 credits of humanities and social sciences in addition to English 101 and 102. Of these six courses, two must be from a single field in the humanities and two must be from a single field in the social sciences. None of the courses may be taken on a Pass/Fail basis. Acceptable courses in the humanities include all courses in:

Art History (except studio course)  
English (literature courses only)  
Foreign Literature, except first year language  
History  
Music History and Theory (except applied music)  
Philosophy

Acceptable courses in the social sciences include:

Economics (except EC 280, 332)  
History  
Political Science  
Psychology (except PY 205, 310)  
Sociology and Anthropology

Five of the six courses must be in the fields listed above. The sixth course may, with prior permission of the student's department chairperson and the Dean of Engineering, be in other non-technical courses within the



University, such as business, education, nursing, or the non-technical courses excluded above.

**Beginning with the class of 1987 the sixth course must be ENG 266 Technical Communications.**

A student may select free electives, as required by the curriculum, without regard to the restrictions imposed above for the humanities or social sciences.

**Engineering Courses for all SMU Students**

The following courses are offered by the College of Engineering as interdisciplinary courses or as courses to satisfy distribution and science requirements.

**I 101 3 credits**

**Man — Environmental and Transportation Problems**

This is the first course sequence offered by the Civil Engineering Department in a combination of two separate seven week mini-courses, primarily for non-engineers, designed to develop an understanding of the technical nature of man's structural problems and his environmental problems.

3 hrs. lecture

**I 102 3 credits**

**Man—Structural and Construction Problems**

This is a second course in the two-course sequence offered by the Civil Engineering Department in combination of two separate seven week mini-courses, primarily for non-engineers designed to develop an understanding of the technical nature of man's transportation, its construction techniques and problems including surveying techniques.

3 hrs. lecture

**I 403 3 credits**

**World Geology**

World Geology is a first course in geological science presenting concepts based upon the recent discoveries that opened up new approaches to age-old mysteries and is now the plate tectonics, continental drift and spreading sea floor theories of the "new" geology. The study of the ocean, the sea floor and coastlines plays an important part in the course. The nature and properties of the materials composing the earth, their distribution and the processes by which they are formed, altered, transported and distorted are covered.

3 hrs. lecture

**I 411/412 3 credits****Technological Society Year 2000 Analysis/Synthesis**

Interdisciplinary study of several technologies (transportation, education, energy, etc.) and of their impact upon the individual and society today and tomorrow. Evaluation of current technological status, its trend, individual valuations of its possible changes. Design of desirable technologies and how to achieve them.

3 hrs. lecture

**I 493 3 credits****Aesthetics-Man's Structures**

This course is intended for civil engineers (all specialties), with little or no formal training in aesthetics and visual design. Emphasis will be placed upon building a firm foundation upon which an aesthetic sensitivity can be developed by the student. In addition, each student will have the opportunity to attempt some visual design of his or her own.

3 hrs. lecture

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## **Programs in Engineering**

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Every student seeking the degree of Bachelor of Science in Engineering is required to take a common core program which is offered essentially in the first four semesters of study. This core program provides the student with a solid foundation in mathematics and the basic chemical, physical, and engineering sciences. The student then has a choice of five Bachelor of Science degree program.

The programs in Civil, Computer, Construction, Electrical and Mechanical Engineering have a common first year so that a student need not make a final choice among these fields until the beginning of specialization in the second year.

The various curricula in the Division of Engineering specify a number of elective courses. Elective courses fall into two categories: technical electives and free electives. Each student is allowed to select free electives from the course offerings of any college at SMU, provided concepts which are new to the student form a substantial part of the course.

The technical electives are usually chosen from the courses offered in the student's major department. Other courses in the areas of mathematics, science or engineering may also qualify as technical electives subject to

approval by the student's major department. The student, in consultation with the faculty advisor, is expected to develop a definite program which meets the student's desires and is approved by the department chairperson. The proper choice of the technical electives allows the student to prepare for his or her future professional activity, whether it be to take a position in industry, continue in engineering or science graduate studies or in a field other than science or engineering.

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## **Engineering Core Courses**

### **EN 161 3 credits**

#### **Engineering Design Graphics**

This introductory course has a threefold objective: (1) to develop an awareness of the history and current status of the profession of engineering; (2) to impart the concepts associated with the design process, including the enhancement of creativity; (3) to develop graphic skills for the communication of ideas from the designer to the fabricator.

2 hrs. lecture; 3 laboratory hrs.

### **EN 201 3 credits**

#### **Elements of Electrical Engineering I**

This course introduces the student to the basic theory and techniques of circuit analysis and electromechanical energy conversion. Topics include AC and DC circuits, magnetic circuits and the natural response of electrical and mechanical elements. Electric motors and generators are also discussed and analyzed.

3 hrs. lecture

Prerequisite: MA 112.

### **EN 221 1/2 credit**

#### **Materials Science Laboratory**

The students study the properties of materials in a series of experiments designed to supplement the course material in Materials Science (EN 231).

3 hrs. laboratory

EN 231 must be taken concurrently.

### **EN 231 3 credits**

#### **Materials Science**

A fundamental treatment of engineering materials. Properties are discussed on the basis of material structure. Metallic, organic and ceramic materials are compared and applications are presented. Phases and phase relationships in binary systems are introduced. Solid state reactions and modifica-



tions of properties through change in micro-structure are studied. Stability of materials in service environments is analyzed on the basis of material structure.

8 hrs. lecture

Prerequisite: CH 152.

### **EN 232 3 credits**

#### **Engineering Thermodynamics I**

The fundamental concepts and basic principles of classical thermodynamics are established. The Zeroth, First and Second laws of thermodynamics are formulated with recourse to empirical observations and then expressed in precise mathematical language. These laws are applied to a wide range of engineering problems. The properties of pure substances are described using equations of state and surfaces of state. Reversible processes in gases are analyzed by means of the First and Second laws. A representative sampling of engineering applications is discussed and analyzed.

3 hrs. lecture

Prerequisite: CH 152, MA 211 concurrently.

### **EN 241 3 credits**

#### **Engineering Mechanics**

##### **Statics**

The first course in engineering mechanics has two major objectives: first, to introduce the student to the science of engineering mechanics and second to introduce the student to the art of applying science to the solution of engineering problems. The specific vehicle or curriculum to accomplish these objectives will be a study of the statics of rigid bodies.

Prerequisites: PH 112, MA 112

### **EN 242 3 credits**

#### **Engineering Mechanics II**

##### **Dynamics**

A continuation of the study of mechanics initiated in EN 241. Work and kinetic energy methods are emphasized. Motion in accelerating coordinate systems and dynamics of a system particles lead to the discussion of rigid body dynamics in three dimensions. A number of examples of rigid body motion are discussed. Free and forced vibrations of one degree of freedom, and free vibrations of multi-degree of freedom systems are studied. The principle of virtual work is introduced and used to briefly discuss stability of equilibrium.

Lecture 3 hours.

Prerequisites: PH 112, EN 241, MA 211.

Corequisite: MA 212.

**EN 251 3 credits****Principles of Measurements**

This course provides an introduction to those thought processes that are fundamental to experimental work in all areas of engineering. Topics include the purpose and mechanics of measurements as well as the organization and reporting of data. Also discussed is the statistical analysis of data and the evaluation of measurement error.

Lecture/Laboratory 2 hrs.

**EN 301 3 credits****Applied Engineering****Mathematics**

A study of mathematical methods useful to the engineer, including matrix algebra, vector calculus, functions of complex variables, and partial differential equations.

3 hrs. lecture.

Prerequisite: MA 212.

## Faculty and Fields of Interest

**Siegfried M. Breuning** transporation, interdisciplinary studies

**Frederick M. Law** structural engineering

**Allan L. Campbell** civil engineering

**Walter J. McCarthy** construction engineering

**Thomas P. Jackivicz (chairperson)**: environmental engineering

**Madhusudan Jhaveri** soil, structures

**Sat Dev Khanna** hydraulics, hydrology, hydrogeology, environmental impact statement, water resources

Civil Engineering is the engineering of constructed facilities, of bridges and buildings and tunnels and dams; of harbors and airports; of waterways and railways and highways; of water power and irrigation and drainage and water supply; of waste disposal and environmental health systems. Civil Engineers are the professionals who plan, design and construct these facilities.

The academic preparation for a profession which is so varied requires considerable breadth as well as depth. The Civil Engineering curriculum at SMU is designed to provide this breadth and depth first by preparing the student with a thorough grounding in mathematics, the basic sciences and the engineering sciences; next by providing a broad background in the basic Civil Engineering specialties; and finally, by offering the student the opportunity to gain some depth of understanding in the specialty of the student's choice by means of a sequence of electives in Environmental and Water Resources Engineering, Structural Engineering, and Transportation Engineering. to betterprepare the student to take his or her place as a citizen as well as a professional. The curriculum is also designed to include a number of courses in the humanities and social sciences.



Early association with the Civil Engineering profession is encouraged by providing opportunities for the student to participate in field trips to facilities under construction and to participate in activities of the Student Chapter of the American Society of Civil Engineers. The Civil Engineering degree program is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology.

## Requirements

				First Semester			Second Semester		
				Lec.	Lab.	Credits	Lec.	Lab.	Credits
<b>First Year</b>									
E	101,	102	Fresh. Eng. I, II	3	0	3	3	0	3
CH	151,	152	Prin. Mod. Chem. I, II	3	0	3	3	0	3
CH	161,	162	Int Chem Lab/Engrs I, II	0	3	1	0	3	1
MA	111,	112	Anal. Geo. & Calc. I, II	4	0	4	4	0	4
PHY	111,	112	Physics I, II	3	0	3	3	0	3
PHY	121,	122	Physics Lab I, II	0	3	1	0	3	1
*EN	161		Engr. Design Graphics	1	6	3			
*CIS	261		Intro. Comp. Prog.				3	0	3
				18			18		
<b>Second Year</b>									
EN	241,	242	Mechanics I, II	3	0	3	3	0	3
MA	211,	212	Calc III, Diff. Equations	4	0	4	3	0	3
CE	201		Surveying	3	0	3			
CE	211		Surveying Laboratory	0	3	1			
EN	231		Material Science	3	0	3			
EN	221		Material Science Lab	0	1½	½			
CE	309		Intro. to Transportation				3	0	3
CE	302		Mechanics of Materials				3	0	3
CE	312		Mech. of Mat. Lab				0	1½	½
CE	252		Ethics, Tech. Report				1	0	1
			Humanities/S.S. Electives	3	0	3	3	0	3
				17½			16½		

**Third Year**

CE	303	Fluid Mechanics	3	0	3			
CE	313	Fluid Mech. Laboratory	0	3	1			
CE	307	Structural Theory	3	0	3			
EN	201	Elem. of Elec. Engr.	3	0	3			
		Math Elective	3	0	3			
CE	304	San. & Environmental Engr.				3	0	3
CE	314	San. & Envr. Engr. Laboratory				0	3	1
CE	308	Structural Engineering				3	0	3
EN	232	Engr. Thermodynamics				3	0	3
		Technical Elective				3	0	3
		Humanities/S.S. Electives	3	0	3	3	0	3
			16			16		

**Fourth Year**

CE	402	Engineering Economy	3	0	3			
CE	403	Soil Mechanics	3	0	3			
CE	413	Soil Mechanics Laboratory	0	3	1			
		Technical Electives	6	0	6	9	0	9
		Free Elective				3	0	3
		Humanities/S.S. Electives	3	0	3	3	0	3
			16			15		

**Total Credits: 133**

\*Both EN 161 and CIS 261 are offered each semester. Roughly half of freshman class will enroll in each.

**Technical Electives**

The following courses are offered by the Civil Engineering Department as technical Electives. These Technical Electives are also available to Construction Engineering students, with prior approval by the department chairperson.

- CE 311 Hydraulics Engineering
- CE 321 Structural Analysis
- CE 411 Water Quality Engineering
- CE 412 Pollution Control of Wastes
- CE 421 Matrix Methods of Structural Analysis
- CE 422 Design of Structural Systems
- CE 423 Design of Foundations and Earth Structures
- CE 431 Highway Engineering
- CE 434 Traffic Engineering

CE 443 Advanced Hydraulics  
CE 491 Civil Engineering Project  
CE 495 Introduction to Construction Engineering  
CE 499 Computer Applications in Civil Engineering

Note: Students should confer with advisors before selecting technical electives to assure that they meet requirements in engineering science and engineering design. Additional technical electives offered in other departments are available to civil engineering students with the prior approval from the department chairperson.

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### **Free Electives**

Free Electives can be chosen by the student through the offerings at SMU. The following Free Electives are offered by the Civil Engineering Department:

CE 305 — Earth and Marine Geology  
I 101 Man — Transportation and Environmental Problems  
I 102 Man — Structures and Construction Problems  
I 493 Aesthetics — Man's Structures  
I 411 Technological Society Year 2000 (Analysis)  
I 412 Technological Society Year 2000 (Synthesis)

Note: I 101 and I 102 are not available to Civil Engineering and Construction Engineering Students as free electives.

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## **Civil Engineering Courses**

### **CE 201 3 credits**

#### **Surveying**

A study of the theory and practice of plane surveying as applied to property topographic and engineering surveys including curves, error theory and earth-work as related to civil engineering projects.

3 hrs. lecture

### **CE 211 1 credit**

#### **Surveying Laboratory**

Consists of field practice to understand and supplement the CE 201 course contents.

3 hrs. laboratory

Prerequisite: CE 201 (concurrent)



**CE 252 1 credit****Ethics, Technical Report Writing, and Professionalism**

Consists of training students in technical report writing, making them familiar with the ethics and professionalism in the field of Civil Engineering practice.

1 hr. lecture

**CE 302 3 credits****Mechanics of Materials**

The behavior of materials and members under axial load, torsion, flexure, shear and combined loads is studied including the deflection of beams and buckling of columns. The relationship between stress and strain, principal stresses and strains and yield and fracture criteria are discussed.

3 hrs. lecture

Prerequisite: EN 241

**CE 303 3 credits****Fluid Mechanics**

The course encompasses the basic concepts in the mechanics of fluids, fluid properties, fluid statics. Kinematics and dynamics of flow fields are developed. Dimensional analysis, metering, laminar and turbulent flows will also be discussed. Emphasis is placed on energy equations with applications to closed conduit and open channel flow problems. Boundary layer concepts and drag and lift forces on submerged bodies are also considered.

3 hrs. lecture

Prerequisite: EN 242

**CE 304 3 credits****Sanitary and Environmental Engineering**

This is an introductory course to the sanitary engineering field. The environmental problems of urbanization and the natural cycle of water are discussed. Elementary hydrology, physical, chemical and biological principles of the treatment of water, sewage and industrial wastes are covered. Municipal services water mains, sanitary sewers and storm water drainage, layout and operation of purification and treatment works are dealt with in detail. In addition, state and federal regulatory standards are introduced and discussed.

3 hrs. lecture

Prerequisites: CE 303, CH 152

**CE 307 3 credits****Structural Theory**

The methods of structural analysis and design of reinforced concrete beams, columns, frames, and one-and two-way slabs using both the elastic and ultimate strength theories are formulated and discussed. Emphasis is placed on giving the student an understanding of the general behavior of statically indeterminate structures as well as the specific behavior of reinforced concrete members.

3 hrs. lecture

Prerequisite: CE 302.

**CE 308 3 credits****Structural Engineering**

The field of structural engineering is introduced through a study of the methods of structural analysis and design of steel structures based on both the elastic and plastic theories. Emphasis is placed on giving the student an understanding of the general behavior of all structures as well as the specific behavior of structural steel members.

3 hrs. lecture

Prerequisite: CE 307.

**CE 309 3 credits****Introduction to Transportation**

The course presents all pertinent characteristics of transportation in a comprehensive overview. The mobility needs of man, their measurement and planning utility are discussed. A human decision model is developed; the physical constraints on transportation are developed; human, technological and economic criteria for transportation systems are developed, and then compared to the existing transportation systems. A discussion of crucial economic principles leads to concepts of planning.

3 hrs. lecture

**CE 311 3 credits****Hydraulic Engineering**

Hydraulic Engineering topics such as reservoirs, open channels, pipe grids, energy dissipators and pumps are studied. The function and design of hydraulic structures such as dams and spillways are studied. Topics also include ground water, site drainage, sediment and basin designs.

3 hrs. lecture

Prerequisite: CE 303.

**CE 312 ½ credit****Mechanics of Materials Laboratory**

A series of laboratory experiments are conducted to investigate the physical characteristics of materials and to verify the assumptions made in the course Mechanics of Materials (CE 302).

Prerequisite: CE 302 (concurrent).

**CE 313 1 credit****Fluid Mechanics Laboratory**

A series of laboratory experiments aimed at supplementing the theory course CE 303 Fluid Mechanics with the objective of initiating the student into the field of fluid observations and experimentation.

3 hrs. laboratory

Prerequisite: CE 303 (concurrent).

**CE 314 1 credit****Sanitary and Environmental Engineering Laboratory**

A series of laboratory experiments aimed at supplementing the theory course CE 304 by actual lab experiments in testing of water and wastewater.

3 hrs. laboratory

Prerequisite: CE 304 (concurrent).

**CE 321 3 credits****Structural Analysis**

The structural analysis of statically indeterminate structures is studied. using the methods of determining deflections developed in Structural Theory, the superposition methods are considered next with the latter method used as an introduction to matrix methods of structural analysis.

3 hrs. lecture

Prerequisite: CE 307.

**CE 402 3 credits****Engineering Economy**

A study of the principles involved in the analysis of proposed investment in capital assets for decision making. Emphasis is placed on techniques for economy studies of multiple alternatives, uncertainties in forecasts, increment costs, retirement and replacement. Enrollment is normally limited to engineering seniors.

3 hrs. lecture

Prerequisite: MA 112.



**CE 402 3 credits****Soil Mechanics**

A study of the physical and mechanical properties of soil types including weight, volume relationship, permeability and drainage characteristics, effective stresses, and soil sampling are also discussed in detail. Engineering aspects of geology are also discussed.

3 hrs. lecture

Prerequisites: CE 302 and CE 303.

**CE 411 3 credits****Water Quality Engineering**

The design of source of supply of water and the distribution systems to water are studied. Chemical, physical and biological processes related to water are emphasized. State and federal purity of water criteria and codes are discussed.

Prerequisite: CE 304.

**CE 412 3 credits****Pollution Control of Wastes**

The nature and causes of solid, liquid and gaseous pollutants and the biological, chemical, and physical characteristics of these wastes are discussed. The analysis, treatment, and disposal of domestic, municipal, and industrial wastes are studied. Survey methods as well as the rationale of control legislation are also discussed.

3 hrs. lecture

Prerequisite: CE 304.

**CE 413 1 credit****Soil Mechanics Laboratory**

A series of laboratory experiments conducted to supplement the theory course CE 403 by actual experiments in testing of various types of soils.

3 hrs. laboratory

Prerequisite: CE 403 (concurrent).

**CE 421 3 credits****Matrix Methods of Structural Analysis**

The stiffness method of structural analysis is covered, and the digital computer is used as a computational tool in the analysis of plane frames, trusses and space frames.

3 hrs. lecture

Prerequisite: CE 307.

**CE 422 3 credits****Design of Structural Systems**

The design of several types of two and three dimensional load carrying structural systems including alternate building systems of combinations of structural steel and reinforced concrete. The selection of the optimum system for a particular type structure is considered.

3 hrs. lecture

Prerequisite: CE 308.

**CE 423 3 credits****Design of Foundations and Earth Structures**

The design of retaining walls; spread, strap, and combined footings, mat and pile foundations; caissons are studied. The design of cofferdams and high embankments are discussed. Emphasis is placed on considerations of bearing capacity, settlement, drainage, and waterproofing.

3 hrs. lecture

Prerequisite: CE 403, CE 307.

**CE 431 3 credits****Highway Engineering**

A study of the fundamental principles underlying the basic divisions of highway engineering; engineering design and construction practices, highway planning, economy, and finance, highway drainage, soils, bases, and pavements.

3 hrs. lecture

Prerequisite: CE 309.

**CE 434 3 credits****Traffic Engineering**

This course introduces the engineering student to the concepts of traffic control. The course begins with a discussion and quantitative appraisal of the characteristics of the components of the transportation systems: the transport user, the vehicle, the road, the control systems, etc. Historical development of control concepts leads to a more detailed discussion of typical control problems such as signing and marking signal concepts and computations, traffic studies for traffic flow analyses, and the development of complex integrated traffic control systems.

3 hrs. lecture

Prerequisite: CE 309.

**CE 443 3 credits****Advanced Hydraulics**

This course explores the relationship of the hydrologic cycle to Civil Engineering. The concept of the water budget, precipitation and abstraction, hydrograph analysis and synthesis are emphasized. Additional topics include frequency analysis, flood routing, snow hydrology, hydrologic synthesis and simulation techniques for large basins. As well as urban and small watersheds are explored from the design viewpoint.

3 hrs. lecture

Prerequisite: CE 311.

**CE 491 3 credits****Civil Engineering Project**

The project course may be taken only by students with senior status. The project must be approved by the Civil Engineering Department within six weeks of the beginning of the project semester. If the project is not approved by the Civil Engineering Department, the credits acquired may not be applied towards graduation credits.

Prerequisite: Senior status/2.5 cumulative average.

**CE 495 3 credits****Introduction to Construction Engineering**

This course serves as an introduction to construction engineering for Civil Engineering majors. Construction engineering applications such as formwork and falsework design, earthwork compaction and compaction equipment and concrete construction are studied. Also, various types of construction equipment, such as excavation equipment, loading and hauling equipment, etc. are also studied. Job planning and management including critical path method applications are studied.

3 hrs. lecture

Prerequisites: CE 308, CE 403.

**CE 499 3 credits****Computer Methods in Civil Engineering**

Knowledge gained in prior courses is used to formulate computer solutions to problems previously solved by manual or graphic methods.

3 hrs. lecture

Prerequisites: CS 261, Senior status.



## Faculty and Fields of Interest

**Daniel G. Murphy (chairperson)**

(See faculty listing and course descriptions under **Electrical Engineering**)

Computer Engineering encompasses a broad spectrum of changing and challenging activities such as research, design and development in computer systems, hardware and software, as well as electronic components which are used in the computer industry. The Computer Engineering Degree Program prepares the students with a strong science background and engineering knowledge to meet the changing high-technology needs in the computer area and for graduate study in computer and electrical engineering. The Computer Engineering Program is managed by the Electrical and Computer Engineering Department.

Specialization opportunities are offered in microprocessors and microcomputer systems, advanced software development, computer communications, digital signal processing, computer graphics as well as the design of information processing systems.

The Computer Engineering Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. Students may join the IEEE Computer Society, a professional society with its local chapter at the Department. The Department also offers a graduate program leading to the M.S. degree in Electrical Engineering with specialization in Computer Engineering.

## Requirements

First Year			Semester Credits:	First	Second
ENG	101,	102	Freshman English I, II	3	3
CH	151,	152	Principles of Modern Chemistry I, II	3	3
MA	111,	112	Analytical Geometry and Calculus I, II	4	4
PH	111,	112	Physics I, II	3	3
PH	121,	122	Physics Lab I, II	1	1
CIS	261		Computer Programming/FORTRAN	3	
CIS	262		Introductory Computer Science		3
				17	17

Second Year			Semester Credits:	First	Second
PH	211	Physics III		3	
MA	211	Analytical Geometry and Calculus III		4	
MA	212	Differential Equations			3
EN	201 / ECE 202	Elements of Electrical Engineering I, II		3	3
EN	231	Materials Science		3	
ECE	361	Digital Logic and Design			3
ECE	252	EE Measurement Lab			2
CIS	263	Data Structures		3	
CIS	264	Programming Languages			3
		Humanities/Social Science Electives			3
				16	17

Third Year			Semester Credits:	First	Second
ECE	311, 312	Electronics I, II		3	3
ECE	371	Signals and Systems		3	
EN	232	Thermodynamics			3
EN	301*	Applied Engineering Mathematics		3	
ECE	351, 352	EE Lab I, II		1	1
ECE	363	Introduction to Computer Engineering		3	
ECE	364	Assembly Language Programming			3
		Humanities/Social Science Electives		3	3
		Free Elective			3
				16	16

Fourth Year			Semester Credits:	First	Second
ECE	461, 462	Computer Architecture I, II		3	3
ECE	467	Operating Systems		3	
ECE	464	Digital Systems Design		3	
ECE	465	Microprogrammed Design			3
ECE	453, 454	Computer Engineering Lab I, II		1	1
		Technical Electives**		3	3
		Free Elective			3
		Humanities/Social Science Electives		3	3
				16	16

\*MA 221-Linear Algebra may be taken in lieu of EN 301.

\*\*At least one technical elective must be taken within the Department. All technical electives taken outside the Department must be approved.

## Faculty and Fields of Interest

### Thomas P. Jackivicz (chairperson)

(See faculty listing under Civil Engineering)

As the largest single industry in the United States, construction requires a large force of specially trained engineers to analyze and manage the construction of bridges, buildings, dams, airports, railways, highways, drainage, water supply and wastewater treatment facilities.

The Construction Engineering curriculum prepares students to enter this field by requiring them to complete civil engineering degree requirements in mathematics as well as basic and engineering sciences. Next, a series of construction engineering courses intensively examines the application of mathematics and science to the construction process. Specialties examined include: estimating, formwork design, contracts, specifications, planning and scheduling, cost engineering, and construction methods and equipment. These courses are supplemented with a series of technical electives and business courses. In addition, in order to prepare the student for his or her role as a citizen as well as a professional, the curriculum contains a number of courses in humanities and social sciences.

The students are encouraged to join the Student Chapter of the Associated General Contractors and to participate in field trips to construction sites.

## Requirements

				First Semester			Second Semester		
First Year				Lec.	Lab.	Credits	Lec.	Lab.	Credits
ENG	101,	102	Freshman English I, II	3	0	3	3	0	3
PH	111,	112	Physics I, II	3	0	3	3	0	3
PH	121,	122	Physics Lab I, II	0	3	1	0	3	1
CH	151,	152	Princ. of Modern Chemistry	3	0	3	3	0	3
CIS	261		Princ. of Computer Programming				3	0	3
MA	111,	112	Anal. Geo. & Calc. I, II	4	0	4	4	0	4
*EN	161		Graphics I	3	0	3			
				17			17		



**Second Year**

EN	241, 242	Mechanics I, II	3	0	3	3	0	3
MA	211, 212	Calc. III, Diff. Equations	4	0	4	3	0	3
CE	201	Surveying	3	0	3			
CE	211	Surveying Laboratory	0	3	1			
CO	222	Mat. Science & Constr. Mat.	3	0	3			
CE	305	Earth & Marine Geology				3	0	3
CE	302	Mechanics of Materials				3	0	3
CE	312	Mech. of Mat. Lab				0	1½	½
CO	212	Surveying Practice				3	0	3
CO	214	Surveying Practice Lab				0	3	1
		Humanities/S.S. Elective	3	0	3			
			17			16½		

**Third Year**

CE	303	Fluid Mechanics	3	0	3			
CE	307	Structural Theory	3	0	3			
EN	201	Elem. of Elec. Engr.	3	0	3			
		Math Elective	3	0	3			
CO	403	Constr. Contracts & Specifications	3	0	3			
		Business Elective	3	0	3	3	0	3
CO	302	Construction Engineering I				3	0	3
CO	303	Construction Engr. I Lab				0	3	1
EN	232	Engr. Thermodynamics				3	0	3
		Technical Elective				3	0	3
		Humanities/ S.S. Elective				3	0	3
			18			16		

**Fourth Year**

CE	403	Soil Mechanics	3	0	3			
CE	413	Soil Mechanics Lab	3	0	3			
CE	402	Engineering Economy	3	0	3			
CO	401	Construction Engineering II	3	0	3			
CO	411	Construction Engr. II Lab	0	3	1			
CO	421	Utility Systems	3	0	3			
		Technical Elective				3	0	3
		Free Elective				3	0	3
CO	402	Construction Engr. III				3	0	3
CO	412	Construction Engr. III Lab				0	3	1
		Humanities/S.S. Electives	3	0	3	6	0	6
			17			16		

**Total Credits: 134½**

\*Both EN 161 and CIS 261 are offered each semester. Roughly half of freshman class will enroll in each.

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**Business Electives**

AC 101 Accounting I  
AC 102 Accounting II  
BA 350 Communication  
FI 312 Business Finance  
IR 422 Personnel Management  
IR 394 Negotiations, Mediation, and Arbitration  
MK 360 Industrial Marketing

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**Technical Electives**

(Available in Civil Engineering Department with prior approval.)

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**Construction Engineering Courses****CO 212 2 credits****Surveying Practice**

The basic principles of control surveys, state plane coordinate systems, field astronomy, curve and volume computations are studied.

3 hrs. recitation

Prerequisite:CE 201

**CO 214 1 credit****Surveying Practice Laboratory**

Consists of field practice to understand and supplement the CO 212 course contents.

3 hrs. laboratory

Prerequisite:CO 212 (concurrent)

**CO 222 3 credits****Materials of Construction**

Mechanical, physics, and relevant chemical properties of the principal materials of construction are discussed including mineral aggregates. P.C. and A.C. concrete, mortar, gypsum and lime products, wood and metal.

3 hrs. recitation

Prerequisite:CH 151

**CO 302 3 credits****Construction Engineering II**

Basics of construction estimating and techniques. Techniques of construction, equipment selection procedures, estimating and pricing labor, materials and equipment for problems in earthwork, waterproofing, roofing, plaster, drywall, glass and plastics, etc. are studied. Emphasis is on basic techniques as they relate to construction. The student will determine methods and develop an estimate for a construction project.

3 hrs. lecture

Prerequisite: MA 212, CE 302, CO 403

**CO 303 1 credit****Construction Engineering Laboratory I**

This course is an extension of CO 302 Construction Engineering and involves field trips and practical demonstration of the subject material covered in CO 302.

**CO 401 3 credits****Construction Engineering II**

Heavy Construction Engineering

Heavy construction techniques are studied with an emphasis on engineering considerations. Topics studies include piling, and deep foundation techniques, concrete placement techniques, formwork design for walls, slabs, columns, beams and other conditions, earthwork techniques including compaction and surcharging, pumping and dewatering systems techniques and design, tunneling systems, and utilization of compressed air systems. Costs and other economic considerations are examined.

3 hrs. lecture

Prerequisites: CO 302, CE 307, CE 308

**CO 402 3 credits****Construction Engineering III**

Advanced Construction Control Systems.

Methods and techniques of planning, programming, scheduling and controlling construction operations and complete projects and concepts of networking techniques are examined and integrated. Time/cost/quality control systems are studied with respect to both manual and computer based applications. As a laboratory project the student plans, schedules, and establishes a control system for a construction job.

3 hrs. lecture

Prerequisites: CO 401, CS 261



**CO 403 3 credits****Construction Contracts and Specifications**

The business, legal and professional relations in construction engineering are discussed. Included are the fundamentals of business law, design contracts, types of construction contracts and bidding procedure, construction insurance, and specification writing. Construction contract conditions and provisions are examined and elements of procurement practice studied in detail.

3 hrs. lecture

Prerequisites: CO 212, CO 222

**CO 411 1 credit****Construction Engineering Laboratory II**

This course is an extension of CO 402 Construction Engineering III, and involves field trips and practical demonstrations of the subject material covered in CO 402.

3 hrs. lecture

Prerequisite: CO 402 (concurrent).

**CO 421 3 credits****Utility Systems**

The interrelationship between structural and heating ventilating, air conditioning and electrical systems is examined. Factors influencing the selection and sizing of utility equipment are also discussed.

3 hrs. lecture

Prerequisites: CE 303, CE 307

**CO 491 3 credits****Project**

**A.** Project course to be taken only by students with senior status.

**B.** Project must be approved by the C.E. Department and an outline of the project must be supplied to the C.E. Department within six weeks of the beginning of the project semester.

**C.** If the project is not approved by the C.E. Department the credits acquired may not be applied toward graduation credits.

## Faculty and Fields of Interest

**Paul R. Caron** antennas, plasmas, computers

**Robert H. Caverly** microwave and solid state electronics, wave propagation

**Chi-Hau Chen** communications systems, pattern recognition and signal processing

**Lester W. Cory** programming languages, HF/VHF communications

**Thomas J. Curry** signal processing, computer systems, underwater systems

**Lee E. Estes** Electro-optics, underwater acoustics

**Gilbert Fain** underwater acoustics, active circuits

**Lenine M. Gonsalves** power systems, circuit design

**John W. Gray** microprocessors, distributed systems, computer networks

**Robert Green** software engineering, programming languages

**Bertram B. Hardy** power engineering, energy conversion

**Robert C. Helgeland** marine electronics, solid state electronics

**Gerald Lemay** optics and signal processing

**Daniel J. Murphy (chairperson)** system analysis, filter theory, performance assessment

**Peter Rizzi** microwave electronics, high frequency systems

**Roman Rutman** control theory, systems analysis

**Dean J. Schmidlin** linear systems, signal processing

**Philip H. Viall** microprocessors, assembly languages

**Richard Walder** circuit theory, power systems

The Electrical Engineering program is designed to prepare students for careers as practicing engineers in the wide variety of fields concerned with electrical and electronic devices and systems. Also, for those students who intend to pursue graduate studies on either a full or part-time basis, this program is consistent with graduate school requirements.

Electrical Engineering encompasses many specialties such as communication, instrumentation, automation, power use and distribution, microwave devices and systems, and digital and analog techniques. In all of these specialties electrical engineers must be familiar with devices and systems and must be able to perform various functions such as research and development, systems analysis, management, production, testing, quality control and sales. They may pursue careers in monitoring and control of the environment, space exploration, transportation systems, ocean engineering, energy resources and computer science.

The students begin to identify with their field in the second year of study, and in the third year they gain a foundation for further study in all branches of electrical engineering. A senior year composed primarily of elective courses allows the students to concentrate their studies in one or more areas of their choice. A faculty advisor from the department is available to aid the student with their selections. A core of basic science and mathematical courses is interwoven throughout the four years of study and the student has the opportunity to elect 18 credit hours in the humanities and social sciences. Six credit hours of free electives can also be used for specialized study.

The Electrical Engineering degree program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The student can associate with his or her profession through the student chapter of the Institute of Electrical and Electronics Engineers. Qualified students can join the Zeta Xi Chapter of the Electrical Engineering National Honor Society, Eta Kappa Nu.

The department also offers a graduate program leading to the M.S. degree in Electrical Engineering. For details consult the Bulletin of the Graduate School.



## Requirements

First Year			Semester Credits:	First	Second
PH	111	112	Physics I, II	3	3
PH	121	122	Physics Lab I, II	1	1
EN*	161		Engineering Design Graphics	3	
CIS*	261		Computer Programming-FORTRAN		3
MA	111	112	Analytical Geometry and Calculus I, II	4	4
CH	151	152	Principles of Modern Chemistry I, II	3	3
CH	161	162	Introductory Lab for Engineers I, II	1	1
ENG	101	102	Freshman English I, II	3	3
				18	18

Second Year			Semester Credits:	First	Second
MA	211		Analytical Geometry and Calculus III	4	
MA	212		Differential Equations		3
PH	211,	212	Physics III, IV	3	3
PH	221		Physics Laboratory III	1	
EN	201, ECE	202	Elements of Electrical Engineering I, II	3	3
ECE*	361		Digital Logic and Design		3
ECE	252		Electrical Measurements Lab		2
EN	231		Material Science	3	
			Humanities/Social Science Electives	3	3
				17	17

Third Year			Semester Credits:	First	Second
ECE	301		Applied Engineering Math	3	
ECE	311,	312	Electronics I, II	3	3
ECE	323		Circuit Theory	3	
ECE	332		Electromagnetic Theory		3
ECE	351,	352	Electrical Engineering Lab I, II	1	1
ECE	371		Signals and Systems	3	
ECE	382		Linear Control Theory		3
			Technical Elective**		3
			Humanities/Social Science Electives	3	3
				16	16

Fourth Year		Semester Credits:	First	Second
ECE 451, 452	Electrical Engineering Lab III, IV		1	1
ECE 471	Communication Theory		3	
	Technical Electives**		6	9
	Free Electives		3	3
	Humanities/Social Science Electives		3	3
			16	16

\* May be taken in either semester.

\*\* One technical elective must be used to take EN 232, Engineering Thermodynamics I.

Technical Electives Offered in the Undergraduate Electrical Engineering Program (before selecting technical electives, students should confer with a faculty advisor to make certain that requirements in engineering, engineering science, and engineering design are met):

ECE 324\* Computer Aided Network Analysis  
 ECE 363\* Introduction to Computer Engineering  
 ECE 384\* Random Signals and Noise  
 ECE 401 402\* Undergraduate Research and Independent Study  
 ECE 403 Special Topics in Electrical Engineering  
 ECE 404 405\* ET Lab V; Design Project  
 ECE 411 412 Active Circuits I, II  
 ECE 431 Antennas and Propagation  
 ECE 434 Ionospheric Radio Propagation  
 ECE 435 436 Microwave Theory I, II  
 ECE 438\* Optical Devices  
 ECE 441\* Energy Conversion Devices  
 ECE 442 Power Electronics  
 ECE 443 444 Power Systems I, II  
 ECE 461 Computer Organization  
 ECE 463 Logic and Sequential Machines  
 ECE 464 Digital System design  
 ECE 472 Advanced Communication systems  
 ECE 475\* Digital Signal Processing  
 ECE 476 Information Transmission and Coding  
 ECE 477 Digital Processing of Speech Signals  
 ECE 481 Advanced Control Theory  
 ECE 482 Optimal Control and Estimation Theory  
 CS 262\* Introductory Computer Science  
 ECE 505 Numerical Analysis  
 ECE 515 Modern Optics

ECE 517 Optical Fiber Communications  
 ECE 532 VLSI Design  
 ECE 561 562 Minicomputers and Architecture I, II  
 ECE 566 Microprocessors  
 ECE 567 Microprocessors II  
 ECE 581 Mathematics of System Analysis  
 ECE 595 Principles of Project Engineering

At least nine (9) credits of technical electives must be taken from electives offered by the Electrical Engineering Department except by approval of the Department. All technical electives taken outside the Department must be approved.

Courses numbered above 500 are graduate level and may be elected by a student only with the consent of the instructor.

\*Open to third and fourth year students.

## Electrical Engineering Courses

### **ECE 202 3 credits**

#### **Elements of Electrical Engineering II**

This course begins with a review of steady-state AC circuit theory. Transient analysis of circuits is developed using the Fourier and Laplace transforms. The remainder of the course introduces the student to the physics of electronic materials, the semiconductor diode, the transistor and the concept of feedback.

Prerequisite: EN 201.

### **ECE 252 2 credits**

#### **Electrical Measurements Lab**

Basic circuit and measurement experiments and digital experiments are done in this laboratory course.

3 hrs. laboratory; 1 hr. lecture

Prerequisite: ECE 202 (May be taken concurrently)

### **ECE 311, 312, 3 credits each**

#### **Electronics I, II**

This course will review the principles and circuit modelling of vacuum tube and semiconductor devices. Amplifier design and analysis, including such topics as low-frequency amplifiers, multi-stage design, bandpass ampli-



ers, transient and frequency response, will be discussed. Other topics will be operational amplifiers, oscillators, modulators and detectors.

3 hrs. lecture

Prerequisite: EE 202 or equivalent.

### **ECE 323 3 credits**

#### **Circuit Theory**

The course involves the development of time-domain and frequency-domain techniques for the analysis of linear network equations. Following a review of loop and nodal analysis, initial condition problem and solution of differential equations are examined. Network theorems and Laplace transforms are used for solving the network equations. Other topics include the network functions, two-port parameters, phasors for AC circuit analysis, energy and power.

3 hrs. lecture

Prerequisites: MA 212, ECE 202.

### **ECE 324 3 credits**

#### **Computer-Aided Network Analysis**

This course is intended to provide an introduction to computer-aided analysis of electrical networks. No prior knowledge, other than introductory classical circuit theory and Fortran, is assumed. Matrix theory and network topology will be used to write complete circuit analysis programs. Techniques of numerical solutions for classical differential equations and solutions of state equations will be covered. The course will also include the use of a generalized electronic circuit analysis program, such as ECAP.

Prerequisite: Fortran and Introductory Circuit Theory.

### **ECE 332 3 credits**

#### **Electromagnetic Theory**

This course will cover stationary and time-varying electric and magnetic fields, circuit concepts consistent with Maxwell's equations, the Smith transmission line chart, and waves in isotropic media.

3 hrs. lecture

Prerequisites: EN 301, PH 211.

### **ECE 351, 352 1 credit each**

#### **Electrical Engineering Laboratory I, II**

This two semester laboratory series includes the use of measuring instruments and techniques in the investigation of non-linear device characteristics, and the network response of basic electronic circuits. Emphasis is on semiconductor devices although vacuum-tube and energy-conversion devices will be included.

3 hrs. laboratory

Prerequisites: ECE 311, 312 and ECE 323, 332 taken concurrently.

**ECE 361 3 credits****Digital Logic and Design**

An introduction to digital techniques from a functional point of view. This course provides the basics of binary arithmetic, logic functions and design with digital devices. Material covered includes quantization, binary numbers and codes, Boolean algebra, digital circuit elements, and digital algorithms. Prerequisite: College level algebra.

**ECE 363 3 credits****Introduction to Computer Engineering**

This course will use a specific microcomputer system to introduce general topics in computer engineering. Topics such as computer architecture, assembly language programming, data structures and operating systems will be introduced. Students will be exposed to the use of cross-assemblers and simulators for microprocessors on SMU's DEC-20 Computer System. 3 hrs. lecture

Prerequisites: ECE 361, CIS 261.

**ECE 364 3 credits****Assembly Language Programming**

The student will be introduced to assembly language programming. The course will include instruction sets and addressing modes and students will write programs to be assembled on a cross-assembler and run on a simulator. Programs will also be run directly using actual target machine computer hardware. Algorithms for arithmetic routines, code conversions, searching and routing and input/output will be discussed. A minimum operating system will be described.

Prerequisite: ECE 363.

**ECE 371 3 credits****Signals and Systems**

Frequency domain analysis of linear systems is introduced. Representation of signals by Fourier series, Fourier transform, bilateral Laplace transform, and unilateral Laplace transform are covered in detail. Convolution theorem, impulse response, physical realizability, and electric wave filters are also discussed.

3 hrs. lecture

Prerequisites: ECE 202, MA\*211.

**ECE 382 3 credits****Linear Control Theory**

Electrical and mechanical analogs, signal flow graphs, feedback systems, Bode and Nichols diagrams, and root loci plots are presented.

3 hrs. lecture

Prerequisites: ECE 371 or ECE 323.

**ECE 384 3 credits****Random Signals and Noise**

Probability, correlation functions, power spectral density, linear filters, signal-to-noise ratio, optimal bandwidth, and others.

3 hrs. lecture

Prerequisite: ECE 371.

**ECE 401, 402 3 credits each****Undergraduate Research and Independent Study**

Investigations of a fundamental and/or applied nature, intended to develop research techniques, initiative, and self-reliance. Also, studies into areas not included in the formal course offerings. Admission to the course is based on a formal proposal endorsed by an advising professor. On the recommendation of the advising professor, the course may be extended for another three credits.

Prerequisite: Senior standing.

**ECE 403 3 credits****Special Topics in Electrical Engineering**

Topics of interest to electrical engineering. Course contents may vary from year to year.

**ECE 404, 405 3 credits****Undergraduate Design Project I, II**

A design project developed under the supervision of an advising professor.

Prerequisite: Senior standing.

**ECE 411, 412 3 credits****Active Circuits I, II**

The manipulation and generation of linear and nonlinear analog signals primarily using operational amplifiers. Active filters, sample and hold circuits, D/A and A/D 's, and phase locked loops are among the devices studied.

3 hrs. lecture

Prerequisites: ECE 311, 312 or equivalent.

**ECE 431 3 credits****Antennas and Propagation**

This course involves various radiating systems including arrays, aperture antennas, and broad-band antennas. Also discusses groundwave propagation and isospheric propagation

3 hrs. lecture

Prerequisite: ECE 332.



**ECE 434 3 credits****Ionospheric Radio Propagation**

This course is an examination of the various atmospheric processes that can affect radio wave propagation in both the troposphere and the ionosphere. Topics to be covered include the Chapman Theory, Maxwell's Equations in ionized media, and the effect of temperature inversions on wave propagation. Experimental techniques used in probing the ionosphere will also be discussed.

3 hrs. lecture

Prerequisite: ECE 332.

**ECE 435 3 credits****Microwave Theory I**

Electromagnetic theory is reviewed. Transmission lines and waveguides are analyzed from a unified standpoint and the Smith Chart is utilized. Microwave devices such as filters, matching devices and slow and fast wave structures are analyzed and strip-line techniques are discussed. The theory of various microwave devices is presented.

3 hrs. lecture

Prerequisite: ECE 332.

**ECE 436 3 credits****Microwave Theory II**

The theory of Microwave Circuit Analysis is presented and used in analyzing devices and systems. The microwave resonator is discussed. Periodic structures, filters, and space charge waves are discussed and used to introduce the foundations of microwave generators such as klystrons, traveling wave tubes and masers.

3 hrs. lecture

Prerequisite: ECE 435.

**ECE 438 3 credits****Optical Devices**

This course deals with the behavior and principles of operation of the following devices: lenses, prisms, polarizers, waveplates, interferometers, filters, beam splitters, light sources including lasers, light modulators, light detectors, film, microdensitometers, image intensifiers.

3 hrs. lecture

Prerequisite: Junior or senior standing.

**ECE 441 3 credits****Energy Conversion Devices**

There are many methods of energy conversion of interest to engineering. This course is a study of energy sources, conversion, and storage. Included will be a thermoelectric process and electrochemical processes. Specialized devices utilizing modern concepts of energy conversion will be surveyed.

3 hrs. lecture

Prerequisite: ECE 323.

**ECE 442 3 credits****Power Electronics**

A study of electronic circuit design based upon power transistors and fixed and/or controlled rectifiers. DC power supplies, choppers, inverters, converters, and cycloconverters are investigated, with applications including high-voltage DC transmission systems and DC and AC machine control as applied to drive systems in industry and transportation.

Prerequisite: Senior ECE standing.

**ECE 443 3 credits****Power Systems I**

The first semester of the study of Power systems will include a general review of the system components (generators, transformers, transmission lines, and loads) necessary for proper system modeling and analysis. Load-flow studies and the methods used will be discussed.

Lecture 3 hours

Prerequisite: ECE 323 or equivalent

**ECE 444 3 credits****Power Systems II**

A continuation of ECE 443, this semester course will include the study of three-phase faults, symmetrical components, unsymmetrical faults, and system protection. A review of the stability problem will also be covered.

Lecture 3 hours

Prerequisite: ECE 443

**ECE 451 1 credit****Electrical Engineering Laboratory III**

This is a continuation of the laboratory sequence and will include laboratory work in electronics, microwaves, communications, and control systems.

3 hrs. laboratory

Prerequisite: ECE 352.

**ECE 452 1 credit****Electrical Engineering Laboratory IV**

Conclusion of the undergraduate laboratory sequence including an investigation of a particular topic or project proposed by the student or assigned by the faculty.

3 hrs. laboratory

Prerequisite: ECE 451.

**ECE 461, 462 3 credits each****Computer Architecture I, II**

The architecture of 16-bit microcomputers will be discussed with emphasis on multiprocessing features. The instruction set, I/O handling, interfacing interrupts and bus structures will be discussed. Use will be made of cross-assembler, simulators and high-level languages. A real-time operating system will be discussed utilizing flow charts and the coding will be presented and analyzed. Prioritized task scheduling in a real-time interrupt driven environment will be discussed. The course will also deal with multiprocessing topics such as bus interfacing, co-processors, bus arbitration, etc.

Prerequisite: ECE 364.

**ECE 464 3 credits****Digital Systems Design**

State machines. Synthesis using various digital technologies.

Prerequisite: ECE 361.

**ECE 465 3 credits****Microprogrammed Design**

ROM centered design, beginning with small controllers and progressing to computers. Various devices and techniques will be considered (e.g. PIA's, pipelining, etc.)

Prerequisite: ECE 464.

**ECE 467 3 credits****Operating Systems**

Batch systems, multiprocessing and timesharing. Concurrent and cooperating processes; critical sections and semaphore; scheduling policies, memory management and file management.

Prerequisites: CS 263 and ECE 364.

**ECE 469 3 credits****Computer Networks**

Introduction to current networking methodologies, queueing theory and backbone design; layered architecture, protocols and distributed computer networks.

Prerequisite: ECE 467.



**ECE 471 3 credits****Communication Theory**

A course required of electrical engineering seniors and elective to others, including Fourier series and Fourier transforms, signals and linear networks, matched filter, random variable and probability functions, autocorrelations and power spectra, noises, amplitude modulation, phase modulation and frequency modulation, sampline theory, pulse modulation, entropy and channel capacity, system comparison, digital modulation systems.

3 hrs. lecture

Prerequisite: ECE 371.

**ECE 472 3 credits****Advanced Communications Systems**

Review of communications theory, microwave mobil communications, data communications, optical communications, satellite communications. The course emphasizes an overall communications systems design.

3 hrs. lecture

Prerequisite: ECE 471.

**ECE 475 3 credits****Digital Signal Processing**

Sampling process, A/D and D/A conversions, discrete linear systems, recursive and nonrecursive digital filter designs, quantization effects in digital filters, fast algorithms for discrete Fourier transforms and Walsh-Hadamard transform, high-speed convolution and correlation operations, discrete generalized linear filtering, applications to digital processing of real data.

3 hrs. lecture

Prerequisite: ECE 371.

**ECE 476 3 credits****Information Transmission and Coding**

Self-information and entropy, sources of information, the structure of language, noiseless coding and the noiseless discrete channel, some properties of codes, the construction of codes, mutual information, channel capacity and Shannon's theorems, error-correcting codes and decoding algorithms, applications to communication nets.

3 hrs. lecture

Prerequisite: ECE 471.

**ECE 477 3 credits****Digital Processing of Speech Signals**

Fundamentals of Digital Signal Processing, Digital Models for the Speech Signal, Time-domain methods for speech processing, digital representations of the speech waveform, short-time Fourier analysis, homomorphic speech processing, Linear predictive coding of speech, man-machine communication by voice.

3 hrs. lecture

Prerequisite: ECE 475 (Digital Signal Processing)

**ECE 481 3 credits****Advanced Control Theory**

The synthesis of feedback control systems is presented. Continuous and discrete systems are treated, nonlinear elements are analyzed and the state variable approach is used.

3 hrs. lecture

Prerequisite: ECE 382.

**ECE 482 3 credits****Optimal Control and Estimation Theory**

Optimal design of control systems via analytical techniques: calculus of variations, dynamic programming, and the maximum principle. Observer theory and Kalman filtering are presented. The digital computer is used to solve many of the problems encountered in the course.

3 hrs. lecture

Prerequisite: ECE 481.

**ECE 484 3 credits****Optimization Theory**

Introduction to mathematical programming techniques and their application to engineering problems as well as to other fields. Unconstrained optimization techniques are stressed. Additional topics including linear and quadratic programming are discussed. Computer solutions are emphasized.

3 hrs. lecture

Prerequisite: Calculus and some linear algebra.

**ECE 492 3 credits****Robotics**

A senior elective introducing robot kinematics, dynamics, mechanisms, controllers, computer control, sensors and sensor feedback. Students will be required to develop and implement a simple computer robotics com-

mand and control language and to implement a robot sensor with feedback.

2 hrs. lecture

3 hrs. laboratory

Prerequisites: ECE 363, ECE 312.

### **ECE 501, 502 3 credits**

#### **Graduate Research**

Investigations of a fundamental and/or applied nature, intended to develop design techniques, research techniques, initiative, and self-reliance. Also studies into areas not included in the formal course offerings. Admission to the course is based on a formal proposal endorsed by an advising professor.

Prerequisite: Graduate standing.

### **ECE 505 3 credits**

#### **Numerical Analysis**

The purpose of this course is to familiarize the engineer with computer-aided techniques, to the point where he or she acquires the facility to use routinely and confidently a numerical approach in the solution of problems for which analytical methods are impractical or impossible. On the other hand, he or she will be made aware of the pitfalls and errors inherent in, or even introduced by, computer methods. Primarily electrical engineering examples will be used to demonstrate the various techniques. Use will be made of a DES-20, a PDP 11/45, and IBM scientific subroutines. Course topics include: root-finding methods; integration methods; matrix operations and devaluations; plotting routines; solutions of ordinary and partial differential equations; and random number generations.

3 hrs. lecture

Prerequisite: Graduate or senior ECE standing, and facility with Fortran.

### **ECE 515 3 credits**

#### **Modern Optics**

The topics considered in this course are Fermat's Principle, geometrical optics, Huygens Principle, coherence, Fourier optics, modulation transfer function, side looking radar, holography and lens aberrations.

Prerequisite: Permission of the Department.

### **ECE 517 3 credits**

#### **Optical Fiber Communications**

The topics presented in this course are optical fibers: structures and wave-guiding, signal degradation in optical fibers, optical sources, power launching and coupling, photodetectors, optical receiver operation, transmission link analysis, measurements, and optical fiber fabrication and cabling.

3 hrs. lecture

Prerequisite: Fourier Analysis and Electromagnetics.



**ECE 521 3 credits****Random Signal Analysis I**

The topics considered in this course are random variables and probability distributions, statistical averages including correlation functions, sampling theory, spectral analysis, the Gaussian process, shot noise, and the detection of signals in noise. The course will include several laboratory demonstrations of signal processing techniques.

3 hrs. lecture

Prerequisite: ECE 471 or equivalent.

**ECE 522 3 credits****Random Signal Analysis II**

This course is a continuation of ECE 521. Measurement of correlation functions and probability densities, statistical detection of signals, optimum linear systems, optimum filtering and prediction, and the statistical description of nonlinear devices.

Prerequisite: ECE 521 or equivalent.

**ECE 523 3 credits****The Fast Fourier Transform and Its Application**

The topics considered in this course are the Fourier Transform and its properties, convolution and correlation, Fourier series and samples waveforms, the discrete Fourier Transform and its properties, discrete convolution and correlation, the Fast Fourier Transform (FTT), development of the base 2 FFT algorithms, FFT algorithms for arbitrary factors, FFT convolution and correlation. Throughout the course applications in the areas of linear systems, optics, sonar, radar, and image processing will be presented.

3 hrs. lecture

Prerequisite: Permission of the Department.

**ECE 532 3 credits****VLSI Design**

Mead and Conway design rules for VLSI circuits. Computer aided design techniques.

3 hrs. lecture

Prerequisite: Graduate standing or permission of instructor.

**ECE 541 3 credits****Methods in Power System Analysis**

Review of matrix theory. Development of algorithms for formation of network matrices. Fault (short circuit) studies. Numerical methods and load flow studies. System stability.

Prerequisite: Permission of the Department.

**ECE 561 3 credits****Minicomputers and Architecture I**

This course will give a practical working knowledge of assembly language programming on a PDP 11 minicomputer including interrupt handling, assembly language — Fortran interfaces and communications to the operating system. In addition, various themes in the development of computer architectures will be examined including hardware and software developments such as virtual memories, stacks, general purpose operating systems and hardware-software tradeoffs.

Prerequisite: CIS 262 or equivalent.

**ECE 562 3 credits****Minicomputers and Architecture II**

The implementation of the control structure of computers will be examined with emphasis on microprogrammed machines. Topics of emulation and simulation will be presented with concepts of virtual and host computers. There will be an overview of various machine architectures and including microcomputers, minis and large scale systems. The types and utility of distributed systems will be discussed and the use of computer networks. Other topics include computer graphics compilers and operating systems with an introduction to the methods of their implementation.

Prerequisite: ECE 561 or assembly language programming experience with consent of instructor.

**ECE 566 3 credits****Introduction to Microprocessors**

Representative microprocessor systems currently available are introduced and compared. The course begins with a general discussion of hardware, software, programming and interfacing. This is followed by consideration of various technologies and hardware/software tradeoffs. In conclusion specific design examples are covered.

Prerequisites: CS 262 and ECE 361 or ECE 361 or equivalent.

**ECE 567 3 credits****Microprocessors II**

Continuation of ECE 566. Emphasis will be on 16 Bit processors. Students will use cross assemblers and cross compilers to generate software for 6809, 8086/8088/8087 and 68000 processors. Projects involving A/D converter, DMA operations etc. will be done on an IBM-PC.

3 hrs. lecture

Prerequisite: ECE 566.

**ECE 571 3 credits****Statistical Communication Theory**

Review of probability theory and random processes; linear systems with random inputs; matched filter and optimum linear filtering and prediction; modulation theory and systems; information theory.

3 hrs. lecture

Prerequisite: ECE 471 or equivalent.

**ECE 572 3 credits****Signal Detection Theory**

Bayes and Neyman-Pearson tests, composite hypothesis testing; signal theory; detection of known signals in Gaussian noise; detection of signals with random parameters in noise; multiple pulse detection of signals; generalized likelihood ratio test; Bayes and maximum likelihood estimations; comparison of communication systems; space-time processing; application to radar and sonar.

3 hrs. lecture

Prerequisite: ECE 471 or equivalent.

**ECE 573 3 credits****Pattern Recognition**

Descriptions of Patterns, Problems Formulation, Linear and Nonlinear Classification Theories, Representation of Patterns, Feature Selection, Supervised Estimation, Unsupervised Estimation, Nonparametric Methods, in Pattern Recognition, Cluster and Mode-seeking Techniques, Recursive Algorithms Using Stochastic Approximation, Sequential Pattern Recognition, Design of Computer Recognition Experiment, Linguistic Approach to Pattern Recognition.

3 hrs. lecture

Prerequisites: ECE 471 and graduate standing or permission of the Department.

**ECE 574 3 credits****Topics in Digital Signal Processing**

Discrete-time signals and systems; the z-transform; the discrete Fourier transform; Network structures; digital filter design techniques; the fast Fourier transform; discrete Hilbert transform; effect of finite register length in digital signal processing; homomorphic signal processing; power spectrum estimation; applications

3 hrs. lecture

Prerequisite: ECE 471 or ECE 475.



**ECE 575 3 credits****Seismic, Sonar and Speech Signal Processing**

The course emphasizes the physical characteristics of seismic, sonar and speech data, and their common mathematical approaches such as deconvolution for signal processing.

3 hrs. lecture

Prerequisite: Permission of the Department.

**ECE 576 3 credits****Computer Communications**

Graph theory for computer network analysis and design; coding for error control; system elements including terminals, modems, multiplexers and concentrators, and communication processors; digital transmission media; teleprocessing network; system modeling and analysis; the reliability and security problems in computer communications.

Prerequisite: Graduate standing.

**ECE 577 3 credits****Artificial Intelligence**

State-space representations and search methods; problem-reduction representation and search methods; theorem proving in the predicate calculus; games, computer vision; robotics; natural languages; intelligent computers and society.

3 hrs. lecture

Prerequisite: Permission of the Department.

**ECE 578 3 credits****Picture Processing by Computer**

This course examines the fundamentals of automatic picture processing and scene analysis. It discusses computer-based methods of segmenting pictures into meaningful parts; determining properties of the parts and relationships among the parts; and using this information to construct descriptions of the pictures. Both algorithms and applications are emphasized. Picture description language is also discussed. Five major application areas and their problems considered are: (1) Document reading: thresholding, template matching and geometrical normalization. (2) High energy physics: curve detection, curve tracking, and curve analysis. (3) Cytology: connected component analysis, border analysis and skeletonization. (4) Radiology: edge detection, texture analysis and relational structures. (5) Remote sensing: texture thresholding and edge detection and region growing and partitioning.

3 hrs. lecture

Prerequisite: Graduate standing.

**ECE 580 3 credits****Time Series Analysis**

The course includes the topics: moving average and autoregressive models, estimation of the mean and autocorrelation, statistical forecasting, spectral analysis and estimation, bivariate processes and linear system identification. Application to electrical engineering is emphasized.

3 hrs. lecture

Prerequisite: Permission of the Department.

**ECE 581 3 credits****Mathematics of Systems Analysis**

Elementary exposition of linear algebra and time domain methods and their utility in the analysis and design of linear systems. Linear space, state variables, controllability, observability, and assignability; linear state variable feedback design; parametric invariance are included.

Prerequisite: Differential equations and matrices.

**ECE 582 3 credits****Optimal Control Theory**

The calculus of variation is reviewed and classical optimal control techniques are discussed based on it. Modern control theory is presented including Pontryagin's principle of maximum and Bellman's dynamic programming. Relation to Hamiltonian mechanics is discussed.

Prerequisite: ECE 581 or equivalent.

**ECE 584 3 credits****Introductory Estimation Theory**

Estimation problems are analyzed in the time domain via the state variable notation. Filtering, prediction, and smoothing problems are treated, and the connection between Kalman filtering and the Weiner-Hopf integral equation is presented. Nonlinear estimation problems are also included.

Prerequisite: ECE 581 or equivalent.

**ECE 585 3 credits****Numerical Filtering and Smoothing Techniques**

Numerical techniques involving matrix factorization are developed and used to define estimation algorithms which are computationally stable.

3 hrs. lecture

Prerequisite: Permission of the Department

**ECE 586 3 credits****Inverse Problems**

Finding the cause function by given effect function is considered an inverse problem. Applications cover some problems of data processing, systems control, and communications. Regularization of ill-posed and ill-behaved problems is treated leading to numerically stable algorithms. Prerequisite: Numerical Methods and some linear algebra.

**ECE 588 3 credits****Stability Theory**

Various types of stability are discussed, with an emphasis on the direct method of Lyapunov. The techniques are applicable to non-linear and linear time—variant systems and include Popov's criterion, circle criterion and treatment of adaptive systems.

Prerequisite: ECE 382 or ECE 581, or equivalent differential equations, matrices.

**ECE 590, 591 3 credits****Topics in Electrical Engineering**

Current topics will be discussed. The content of this course will probably change from year to year

3 hrs. lecture

Prerequisite: Permission of instructor.

**ECE 593 3 credits****Quantum Electronics**

General principles of the laser including media, transmission and resonators. Specific laser types including solid state, gaseous and semiconductor. Modulation, noise and detection of optical radiation. Non-linear applications such as second harmonic generation and parametric interactions.

Prerequisites: ECE 332 and PH 242 or equivalent.

**ECE 595 3 credits****Principles of Project Engineering**

The Life-Cycle phases of research, development and engineering projects are studied and analyzed with emphasis on the methodologies that lead to successful execution of such projects. Principles of software engineering are highlighted throughout to prepare the student for the development of embedded computer systems. In parallel with the formal study of these projects and their execution, an authentic work environment is created through the formation of project teams and the assignment of real engineering tasks of contemporary importance. The student teams conduct these projects under the supervision of the instructor, and evaluation of the student's



progress and performance is conducted in a manner similar to that which can be expected in a real environment. Seminars given by industry engineers are also included in the course.

3 hrs. lecture

Prerequisite: Graduate, or senior standing with permission of instructor.

### **OE 591 3 credits**

#### **Underwater Acoustics I**

Review of the wave equation and its application to acoustics and acoustic boundary value problems. Velocity profiles in the ocean are discussed and ray tracing techniques are developed. Propagation of sound in the sea, transmission losses, boundary effects and the sonar equations are also developed.

Prerequisite: EN 301 or equivalent.

### **OE 592 3 credits**

#### **Underwater Acoustics II**

A continuation of Underwater Acoustics I. Normal mode solutions are developed and applied. Reverberation, scattering and ambient and self noise are discussed. The generation of underwater sound and the properties of arrays are examined.

Prerequisite: OE 591.

### **CIS 565 3 credits**

#### **Topics in Advanced Software I**

This course will emphasize the structure and design of operation systems. Topics include the function of an O.S., switching CPU control, batch systems, processes, multiprogramming and timesharing. Concurrent and cooperating processes will be discussed with respect to locking operations, shared data, P and V semaphore operators, synchronization, message switching and device communications. Other topics are scheduling policies, storage management, deadlocks files and file directions.

Prerequisite: ECE 561 or consent of instructor.

### **CIS 566 3 credits**

#### **Topics in Advanced Software II**

This course will focus on the principles and techniques of data base management and data base technology. Topics include objectives of data base organization, entities and attributes, tree and plex structures, data description languages, relational data bases, physical and logical organizations, multiple key retrieval, inverted file structures and fast response systems.

Prerequisite: ECE 561 or systems programming background.

**ECE 600, 601 3 credits each**  
**Graduate Thesis**

**ECE 700**  
**Seminar**

## Faculty and Fields of Interest

**L. Bryce Andersen** synthetic fuels

**Gordon F. Anderson** fluid mechanics, energy conversion and conservation

**Dimitri Argy** materials science, physical metallurgy, powder metallurgy

**Alden Counsell** mechanics, strength of materials, manufacturing processes

**David J. Creamer (chairperson)** mechanics, analytical and experimental stress analysis, CAD/CAM

**Ronald DiPippo** thermodynamics, power plant design, geothermal energy conversion systems

**Fryderyk E. Gorczyca** graphics, kinematics, tool engineering

**John W. Hansberry** solid mechanics, control theory, machine design, vibrations

**Conrad P. Richard** machine design, graphics, industrial design and planning

**T.K. Roy** machine design, solid mechanics, shell dynamics

**Thomas B.S. Shen** heat transfer, thermodynamics, fire research

**K. Srinagesh** manufacturing processes, physical metallurgy, foundry technology

**Hans U. Thommen** fluid mechanics, numerical analysis, mechanics

**Howard C. Tinkham** mechanics of materials, fluid mechanics, heat transfer

**Eugene R. Williams** thermodynamics, geology, engineering materials



Mechanical engineers are involved in a broad spectrum of technical activities from the design and manufacture of various products to fundamental research.

Mechanical engineers are concerned with the production, transmission and use of power. They design and develop systems which produce power, such as steam and gas turbines, internal combustion engines, nuclear reactors, jet engines, and rocket motors. On the other hand, they design and develop devices which consume power in order to accomplish some other useful result, such as refrigeration and air conditioning equipment, machine tools, rolling mills, and elevators, to name a few.

The environmental impact of these systems forms an integral part of their analysis and design. Mechanical engineers must cope with stringent standards of air and water quality, noise abatement and thermal pollution. Their designs must measure up to very severe performance and environmental quality standards.

Graduates of the Mechanical Engineering program find employment in a number of areas, including private industry, government, consulting firms and education. They may be involved in one or more of the following activities: research, design, development, administration, management, sales or production supervision.

The SMU Mechanical Engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. It has as its goals the preparation of the student for a career in mechanical engineering or for the continuation of his or her studies in graduate school. The first two years of the program include basic courses in the areas of mathematics, chemistry and physics, together with introductory courses in applied science such as mechanics, materials and electrical science. Specialization occurs during the last two years with courses available in the areas of thermodynamics, fluid mechanics, control systems, materials behavior, energy, and mechanical design.

A student chapter of the American Society of Mechanical Engineers permits the student to initiate his or her professional contacts through a program of technical and social events which bring the student together with engineers from industry and students from other engineering schools.

## Requirements, starting with class of 1987

First Year			Semester Credits:	First	Second
MA	111, 112	Analytic Geometry and Calculus I, II		4	4
CH	151, 152	Principles of Modern Chemistry I, II		3	3
CH	161, 162	Chemistry Laboratory I, II		1	1
PH	111, 112	Physics I, II		3	3
PH	121, 122	Physics Laboratory I, II (biweekly)		1	1
ENG	101, 102	Freshman English I, II		3	3
EN	161*	Engineering Design Graphics*		3	
CIS	261	Computer Programming-FORTRAN*			3
				18	18

\* Offered both semesters

Second Year			Semester Credits:	First	Second
PH	211	Physics III		3	
EN	231	Materials Science		3	
EN	221	Materials Science Laboratory (biweekly)		1/2	
MA	211	Analytic Geometry and Calculus III		4	
EN	241 242	Engineering Mechanics I, II		3	3
		Humanities/Social Science Electives		3	3
ME	201	Mechanical Engineering Laboratory I			1
ME	292	Introduction to Mechanical Engineering Design			1
ME	252	Mechanics of Materials			3
EN	232	Engineering Thermodynamics I			3
MA	212	Differential Equations			3
				16 1/2	17

Third Year			Semester Credits:	First	Second
EN	301	Applied Engineering Mathematics		3	
ME	321	Engineering Thermodynamics II		3	
ME	345	Design for Manufacturing		3	
ME	355	Manufacturing Processes Laboratory		1	
ME	381	Design of Machine Elements		3	
EN	201/ECE202	Elements of Electrical Engineering I, II		3	3
ECE	252	Electrical Measurement Laboratory			2
ME	305 306	Mechanical Engineering Lab II, III (biweekly)		1/2	1/2
ME	332	Fluid Mechanics I			3
ME	382	Mechanical Engineering Synthesis and Design			3
		Humanities/Social Science Electives			3
		Technical Communications			3
				16 1/2	17 1/2

Fourth Year			Semester Credits:	First	Second
ME	494	Design Project		3	
ME	411	Heat Transfer		3	
		Technical Electives		6	6
		Humanities/Social Science Electives		3	3
ME	466	Control Theory			3
		Free Electives			3
				15	15

#### Technical Electives

ME	412	Applied Heat Transfer
ME	422	Energy Conversion
ME	423	Refrigeration and Air Conditioning
ME	424	Geothermal Energy
ME	425	Power Plant Design and Engineering
ME	426	Synthetic Fuels
ME	431	Fluid Mechanics II
ME	432	Aircraft and Rocket Propulsion Systems
ME	436	Mobile Power Plants
ME	438	Energy Systems Analysis
ME	441	Mechanical Vibrations
ME	442	Introduction to Numerical Methods
ME	452	Mechanics of Materials II
ME	457	Basic Nuclear Engineering
ME	460	Combustion Systems
ME	462	Experimental Stress Analysis
ME	463	Kinematic and Dynamic Analysis of Machines
ME	464	Turbomachinery
ME	471	Physical Metallurgy
ME	472	Metal Forming Operations
ME	473	Powder Metallurgy
ME	490	Special Topics in Mechanical Engineering
ME	496	Directed Study
CE	402	Engineering Economy
CH	370	Introduction to Chemical Engineering

Students should confer with advisors before selecting technical electives to assure that they meet requirements in engineering science and engineering design.



## Mechanical Engineering Courses

### **ME 201 1 credit**

#### **Mechanical Engineering Lab I**

The laboratory includes experiments to supplement Mechanics of Materials I and Engineering Thermodynamics I. Topics such as calorimetry, specific heats, engine performance, strain gages, tensile and torsion testing are typically covered.

Laboratory 3 hours every week.

Corequisites: ME 252, EN 232.

### **ME 252 3 credits**

#### **Mechanics of Materials I**

The course begins with a review of statics and discussion of deformation of solids. Stress is introduced only after the student understands the mathematics of strain in two and three dimensions. The student's knowledge of coordinate transformations presented in Dynamics (ME 311) is used to discuss stress and strain as tensors. Elastic deformation under the influence of force is introduced as a boundary value problem and torsion of a shaft is given as an example. The strength of materials method is used to treat bending of beams, simple structures, and members under combined strain, energy methods and stability are briefly discussed.

Lecture 3 hours.

Prerequisite: En 241.

### **ME 292 1 credit**

#### **Introduction to Mechanical Engineering Design**

Principles of design are introduced primarily through problems in kinematics with some discussion of mathematical modeling of machine elements and systems. The design process as an iterative procedure is discussed. Proper forms for calculations and reports for industrial practice are covered.

Lecture 1 hour, laboratory 2 hours every week.

Corequisites: EN 242, ME 252.

### **ME 305, 306 1/2 credit each**

#### **Mechanical Engineering Laboratory II, III**

Several extensive investigations into various commonly encountered devices and areas that are of interest to mechanical engineers. These include engines, turbines, water cooling towers, conduction, convection, radiation and refrigeration.

Laboratory biweekly each semester.

Corequisites: ME 321, ME 332.

**ME 321 3 credits****Engineering Thermodynamics II**

Mechanical engineering applications of ideal and real compressors; gas turbine power systems; a variety of air-standard cycles including the Brayton, Ericsson, Stirling, Otto, Diesel and Wankel cycles; and several vapor cycles including the Carnot, Rankine, modified Rankine, and binary cycle. An introduction to vapor-compression refrigeration and heat pumps is given. Thermochemistry and combustion are discussed with emphasis on application of the First and Second laws to chemical reactions. Chemical equilibria in homogenous gas systems are studied.

Lecture 3 hours.

Prerequisite: EN 232.

**ME 332 3 credits****Fluid Mechanics I**

In this first course in Fluid Mechanics, the basic properties of fluids and the governing equations of their motion are emphasized. The applications are concerned primarily with steady, inviscid flows of incompressible fluids. In particular, the following topics are introduced: physical properties of fluids; fluid statics; kinematics of fluids including stream function, velocity potential, and vorticity; conservation laws in integral and differential form; friction losses for internal flows are included in the extended Bernoulli equation together with pump or turbine power; dimensional analysis; elements of potential flows.

Lecture 3 hours.

Prerequisite: EN 232, EN 301.

**ME 345 3 credits****Design for Manufacturing**

Manufacturing processes are discussed and compared for economy of production; modifications to proposed designs to suit existing equipment are covered. Material selection to suit production and service requirements is covered along with the economics of automation and inventory control.

Lecture 3 hours.

Prerequisites: EN 241, ME 252, ME 292.

**ME 355 1 credit****Manufacturing Process Laboratory**

Experiments in casting, forming, and cutting operations using conventional and modern manufacturing techniques are given to supplement the lecture material in ME 345. Welding and other bonding operations are included as time permits.

Laboratory 3 hours every week.

Corequisite: ME 345.

**ME 381 3 credits****Mechanical Engineering Design**

This course comprises a comprehensive survey of the analytical design methods that are valuable to mechanical engineers. Some of the areas covered are: stress analysis, fatigue, stress concentration, design of curved beams, selection of standardized elements, and lubrication. The objective of the course is to enable the student to handle design problems with confidence and assurance.

Lecture 3 hours.

Prerequisite: ME 252.

**ME 382 3 credits****Mechanical Engineering Synthesis and Design**

Mathematical modeling of complete systems is emphasized; techniques for analysis of linear systems are covered in detail with some discussion of nonlinear systems. Optimization of mechanical systems from performance and economic standpoints is considered. The laboratory includes computer analysis of systems and test programs for material and system quality assurance.

Lecture 3 hours.

Prerequisites: MA 212, ME 381, ME 292.

**ME 411 3 credits****Heat Transfer**

The basic principles of heat conduction, forced and free convection and thermal radiation, together with their application to various engineering problems are main topics in this course. Mass transfer and its analogy to heat transfer phenomena is sketched. Special problems, such as boiling and condensation, heat transfer in high speed flow, and fire propagation are introduced. Mathematical analysis motivated by physical reasoning is emphasized.

Lecture 3 hours.

Prerequisite: ME 321, ME 332, EN 301.

**ME 412 3 credits****Applied Heat Transfer**

The extension of basic heat transfer knowledge to various practical fields of interest such as multiphase heat transfer problems including boiling and condensation, environmental heat transfer problems including aspects of the general problems of thermal pollution, special heat transfer experiments, combustion problems including fire propagation, and the design and analysis of man-made heat transfer devices.

Lecture 3 hours.

Prerequisite: ME 411.



**ME 422 3 credits****Energy Conversion**

This course starts with an introduction to various energy resources, followed by a description of the use of chemical potential energy, nuclear energy and solar energy, the analysis and design criteria for various energy conversion devices, such as generators, transformers, motors, power distribution systems, solar cells, etc. The understanding of the working principles and the essential design conditions are emphasized.

Lecture 3 hours.

Prerequisite: ME 332, EN 232, EE 202.

**ME 423 3 credits****Refrigeration and Air-Conditioning**

The basic principles of refrigeration are presented with applications to vapor-compression, steam-jet, and absorption systems, together with heat pumps. Psychometrics and the physiological factors involved in air-conditioning are discussed along with the analysis of various processes. In particular the use and analysis of water cooling towers is emphasized.

Lecture 3 hours.

Prerequisite: ME 321.

**ME 424 3 credits****Geothermal Energy**

A brief review of relevant topics from thermodynamics, fluid mechanics and heat transfer is presented. Elements of geology pertinent to geothermal energy are covered. The various types of geothermal resource are discussed in detail and estimates of the potential of each are given. Technical systems of geothermal utilization are covered. Major emphasis is placed on the energy conversion systems to produce electrical power from geothermal resources. Dry steam, single and dual flash, binary, total flow, and hybrid systems are analyzed in detail. The environmental impact of geothermal energy usage and the economic factors associated with it are also discussed.

Lecture 3 hours.

Prerequisite: ME 321, ME 332; ME 411 concurrently.

**ME 425 3 credits****Power Plant Design and Engineering**

Emphasis is placed on using theory as a basis for plant design and equipment selection. Practical design calculations including heat balance are carried out. Fossil- and nuclear-fueled plants as well as gas turbine and hydroelectric plants are covered. The economics of alternatives is discussed.

Lecture 3 hours.

Prerequisite: ME 321, ME 411.

**ME 426 3 credits****Synthetic Fuels**

The production of synthetic fuels from coal and oil shale, including the engineering, economic, environmental, and political factors that must be considered in developing a viable synthetic fuels industry.

Lecture 3 hours.

Prerequisite: Ch 151, 152 and a course in thermodynamics.

**ME 431 3 credits****Fluid Mechanics II**

After a brief review of the basic equations of fluid mechanics, applications to compressible flow are emphasized. In particular, one-dimensional flows are discussed including: variable area flow, Fanno flows, Rayleigh flows and normal shock waves. In two-dimensional flows, oblique shock waves and Prandtl-Meyer flows are studied. A small design project is assigned and performed in small groups.

Lecture 3 hours.

Prerequisite: ME 332.

**ME 432 3 credits****Aircraft and Rocket Propulsion Systems**

This course deals with the mechanics and thermodynamics of airborne propulsion systems. Thrust equations and efficiencies are derived from first principles and applied to a variety of systems. Airbreathing engines that are discussed include ramjets, turbojets, turbofans, and turboprops. The aerothermodynamics of inlets and nozzles is presented. The course concludes with an introduction to rocket propulsion, including the identification and classification of types of rocket systems, fundamental definitions and derivations, and rocket dynamics.

Lecture 3 hours.

Prerequisite: ME 321, ME 431.

**ME 436 3 credits****Mobile Power Plants**

The course begins with a review of applicable power cycles; factors governing engine efficiency are discussed. Mechanical design of engine components constitutes the bulk of the course with attention given to stress, vibrations, wear and heat transfer. The utilization of power plants other than heat engines, such as fuel cells, is considered.

Lecture 3 hours.

Prerequisite: ME 321.

**ME 438 3 credits****Energy Systems Analysis**

Analysis of energy systems with particular attention to identifying potentials for energy conservation and the reduction of scarce fuel usage. Identification of system designs that will supply energy to meet a given demand at least cost to the society.

Lecture 3 hours.

Prerequisite: ME 321.

**ME 439 3 credits****Engineering Design of Energy Conserving Systems**

This course discusses the design and selection of components and sub-systems to provide maximum efficiency in energy conserving systems. Mechanical, thermal, and electric aspects are covered.

Lecture 3 hours.

Prerequisite: ME 438.

**ME 441 3 credits****Mechanical Vibrations**

The course begins with a discussion of generalized coordinates and the Lagrangian method of determining a system's equations of motion. Normal modes and normal coordinates are introduced and the method of matrix iteration is used to find natural frequencies and modes. Free vibration of continuous systems is considered and techniques for finding natural frequencies are developed. Forced and transient responses of one degree of freedom systems are treated extensively, and forced response of multi-degree of freedom systems is discussed. Electrical analogies, use of the analog computer, and modeling of actual physical systems are discussed.

Lecture 3 hours.

Prerequisite: EN 242, EN 301.

**ME 442 3 credits****Introduction to Numerical Methods**

Emphasis is placed on numerical solutions of nonlinear problems, such as nonlinear equations and systems of nonlinear equations, ordinary differential equations and systems of differential equations including boundary value problems. In addition, the solution of selected partial differential equations is discussed. The stability and accuracy of the numerical methods are investigated. Students are expected to have a working knowledge of FORTRAN IV programming.

Lecture 3 hours.

Prerequisite: EN 301.



**ME 452 3 credits****Mechanics of Materials II**

After reviewing the development of the flexure formula, the stress equation is derived for unsymmetrical bending. Curved beams loaded in the plane of curvature are analyzed as are beams with combined axial and lateral loadings. The general equation for beams on elastic foundations and its applications are studied. Stresses and deflections due to dynamic loads are examined. The basic equations of elasticity are developed and two dimensional problems analyzed using Airy's stress function. Solutions are compared to strength of materials results. Energy methods are discussed. The Lagrange plate equation is derived and plates fabricated from modern composite materials are discussed.

Lecture 3 hours.

Prerequisite: ME 252, EN 301.

**ME 457 3 credits****Basic Nuclear Engineering**

A consideration and discussion of the engineering problems in nuclear power generation. Topics include a review of basic atomic structure, radioactive properties of nuclei, nuclear reactions, radiation detection, radiation protection, neutron interactions, steady state reactor core, transient reactor behavior and control, nuclear thermal aspects, and reactor power plant design. Discussion emphasizes the application of basic principles, examples of design processes and detailed performance analysis.

Lecture 3 hours.

Prerequisite: ME 321.

**ME 460 3 credits****Combustion Phenomena**

Combustion phenomena, fire phenomena, power generating systems, combustion engines.

Lecture 3 hours.

Prerequisites: ME 321, ME 332, ME 411.

**ME 462 3 credits****Experimental Stress Analysis**

The course is divided into two major parts. The first part of the course deals with theory and practice of photoelastic methods which are applied to classical experimental stress analysis of models and are modified for use in photoelastic coatings. Three dimensional problems are studied and solved by the use of the digital computer. Emphasis is on the interpretation, limitations and designing by photoelasticity. The second part of the course presents the theory and application of mechanical and electrical strain gauges, and brittle coatings. Installation, instrumentation and circuitry of gauge set-ups or transducer use in experimental stress analysis are discussed.

Lecture 3 hours.

Prerequisite: ME 252.

**ME 463 3 credits****Kinematic and Dynamic Analysis of Machines**

The course begins with an introduction to the various types of mechanisms, their application and methods of operations. Four-bar linkages are discussed in detail with emphasis on the velocity and acceleration analysis of slider-crank, quick-return, scotch-yoke and intermittent motion mechanisms. Vector methodology is used extensively although graphical and complex variable methods are also employed. Different types of cams and followers are studied and profiles determined satisfying given time-displacement requirements. Both standard and non-standard gears are treated with regard to their construction, performance, usage and geometrical features. Various types of gear trains are analyzed. Force and torque analysis of various machine parts is performed for both static and dynamic conditions. Gyroscopic devices are treated. The course concludes with the study of balance of machinery under static and dynamic conditions.

Knowledge of FORTRAN IV computer programming is required.

Lecture 3 hours.

Prerequisite: EN 301, EN 242.

**ME 464 3 credits****Turbomachinery**

The course introduces the student to the common principles of various turbomachines; selection of appropriate machines for predetermined applications is included using dimensional analysis. A detailed study of flow in a cascade of airfoils is made. Several design programs are assigned.

Lecture 3 hours.

Prerequisite: ME 321, ME 332, ME 431 recommended to be taken concurrently.

**ME 466 3 credits****Control Theory**

The course begins with a discussion of control system terminology. Modeling of control system elements and the method of linearization and its applicability are discussed. The effects of nonlinearities are briefly mentioned. The Laplace transform, stability, transfer functions, and synthesis are discussed for linear systems. An introduction to statistical methods is presented. Examples of hydraulic, electrical and pneumatic systems are given, and elements of systems such as servomotors, cams, gears, and linkages are studied. Applications of micro-processors are included.

Lecture 3 hours.

Prerequisite: EN 242, EN 301.

**ME 471 3 credits****Physical Metallurgy**

The structure of metals and alloys and their determination by x-ray diffraction is presented. Structural imperfections and their influence on mechanical properties are considered. The electron theory of metals introduced. Binary phase diagrams are studied on the basis of thermodynamic principles. Emphasis is placed on the iron-carbon system. Subjects such as creep and fatigue are also considered.

Lecture 3 hours.

Prerequisite: EN 231.

**ME 472 3 credits****Metal Forming Operations**

Plastic deformation is presented in terms of dislocation theory. Various methods of the failure of metals are discussed and the field of plastic working and shaping is studied. Emphasis is on metallurgical interpretation and the influence of structure on mechanical properties. Operations such as forging, rolling, extrusion, and rod, wire and tube drawing are presented in some detail.

Lecture 3 hours.

Prerequisite: EN 231.



**ME 473 3 credits****Powder Metallurgy**

Characterization and production of powder. Measuring techniques and bulk properties. Powder compaction methods. Behavior and powders during compaction and green properties. Sintering. Material transport and transformations during sintering. Sintering atmospheres and furnaces. Properties of sintered materials. Engineering properties and product design.

Applications.

Lecture 3 hours.

Prerequisite: EN 231.

**ME 490 3 credits****Special Topics in Mechanical Engineering**

The course allows visiting professors or members of the faculty to present current topics of interest in their areas of expertise.

Lecture 3 hours.

Prerequisite: as required.

**ME 494 3 credits****Mechanical Engineering Design Projects**

In this course the student applies his or her knowledge gained in various courses to the synthesis, analysis, and design of a system in his particular field of interest. Offered by the staff or the department.

Laboratory 6 hours, lecture 1 hour.

Prerequisite: Senior standing.

**ME 496 3 credits****Directed Study**

A student works under the direction of a faculty member and pursues a specific line of study in an area of interest to the student. The work may deal with subject matter not normally available in the curriculum, or may involve a design project.

Lecture/laboratory arranged as required.

Prerequisite: Senior standing.

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## Programs in Engineering Technology

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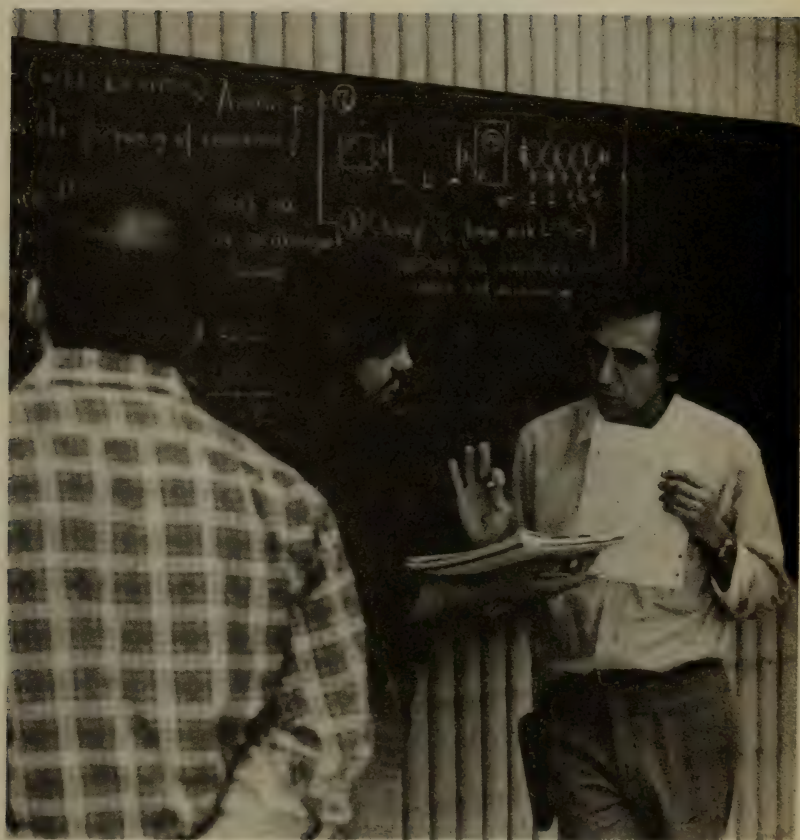
The degree of Bachelor Science in Engineering Technology has emerged in progressive schools across the country as a solution to the ever-widening gap between the four-year, science-oriented engineering curricula, and the two-year application-oriented technical curriculum.

Engineering education in the United States has progressed during the last thirty years from a specialized application-oriented training to a broad education in the fundamental sciences which form the foundations of engineering. As a result of vast technological advances there was a tendency to increase the amount of subject material in the engineering curriculum. However, this forced the credit hour requirements for an engineering degree to unrealistically high values, at which point material that had been a traditional part of engineering curricula was gradually eliminated to keep the graduation requirements within reasonable limits.

For students who intend to go on to employment in an application-oriented industry, the present engineering curricula do not provide either the required depth of specialization or the necessary training in the application of engineering fundamentals to engineering problems of lower sophistication. The technology programs are designed to meet this need. Thus, the engineering technologist is one who work area lies within the scope of the engineering field and requires the application of scientific and engineering knowledge and methods together with technical skills that support engineering activities.

Each candidate for the degree of Bachelor of Science in the field of engineering technology must satisfy the minimum degree requirements of the department selected with respect to English, the sciences, technical subjects, and electives.

Electives fall into three categories: humanities and social science electives, free electives, and technical electives. The College of Engineering has a minimum requirement of 18 credits in the Humanities/Social Sciences area in addition to English 101 and 102, and has established a policy that none of these may be taken under a pass/fail option. Free electives may be chosen from the course offerings of any college at SMU provided concepts which are new to the student form a substantial part of the course. The technical electives are usually chosen from the courses offered in the student's major department. Courses in the area of mathematics, science or other engineering departments may also qualify as technical electives subject to approval by the student's major department.





**Daniel J. Murphy (chairperson)**

(See faculty listings under Electrical Engineering.)

The prime objective of the Electrical Engineering Technology program is to provide the student with a practical design experience so that upon graduation he may successfully pursue a career as an electronic technologist. The senior design project is the ingredient in this program which is most necessary to the achievement of this objective. It requires a laboratory design of an electronic component which is the culmination of a study conducted by the student working as a member of a small team. This affords the student the opportunity to bring to bear, on a practical design problem, the many tools and techniques which he has developed throughout his college years.

The laboratory approach is stressed in this program, demonstration experiments are conducted in the classroom to supplement each of the junior and senior level courses. The incorporation of current industrial techniques, which is an integral part of this program, is assured through the use of lecturers from nearby industrial organizations.

The Electrical Engineering Technology program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering Technology. Students may associate with their chosen profession by joining the Student Chapter of the Institute of Electrical and Electronic Engineers (IEEE).

**Requirements**

First Year			Semester Credits:	First	Second
ENG	101, 102	Freshman English		3	3
PH	107, 108	Basic Physics I, II		3	3
PH	103, 104	General Physics Lab I, II		1	1
CH	101	General Chemistry I		3	
MA	105, 106	Technical Calculus I, II		3	3
TM	101, 102	Graphics I, II		2	2
ET	221	Electric Circuits I			3
				15	15

Second Year			Semester Credits:	First	Second
TM	231, 232	Mechanics I, II	3	3	
MA	203	Technical Calculus III	3		
MA	204	Differential Equations			3
TM	222	Materials Science			3
ET	222	Electric Circuits II	3		
ET	251, 252	ET Lab I, II	1		1
CIS	261	Computer Programming-FORTRAN	3		
ET	212	Electronics I			3
		Humanities/Social Science Electives	3		3
			16		16
Third Year			Semester Credits:	First	Second
ET	315	Instrumentation	3		
ET	321, 322	Circuit Analysis and Design I, II	3		3
ET	341	Electromechanical Energy Conversion	3		
ET	332	Transmission Lines			3
EE	361	Digital Logic and Design			3
ET	311, 312	Electronics II, III	3		3
ET	351, 352	ET Lab III, IV	1		1
		Humanities/Social Science Elective	3		3
			16		16
Fourth Year			Semester Credits:	First	Second
ET	451, 452	ET Lab V; Design Project	3		3
ET	472	Applied Communications	3		
		Technical Electives	3		6
		Free Electives	3		3
		Humanities/Social Science Electives	3		3
			15		15

## Electrical Engineering Technology Courses

### ET 212 3 credits

#### Electronics I

This course is primarily concerned with the operation and application of semiconductor devices. The devices to be discussed are diodes, transistors, sener diodes, silicon-controlled rectifiers, unijunction transistors, and triacs. Applications include clippers, clampers, rectifiers, voltage regulators, and power control circuits.

3 hrs. lecture

Prerequisite: Knowledge of DC and AC circuits.

**ET 221, 222 3 credits each****Electric Circuits I, II**

Basic AC and DC circuits, Kirchoff's laws, loop and nodal analysis. Thevenin's and Norton's theorems, and sinusoidal steady state solutions.

3 hrs. lecture

Prerequisite: MA 106 taken concurrently with ET 221; MA 203 taken concurrently with ET 222.

**ET 251, 252 1 credit each****Electrical Technology Laboratory I, II**

This laboratory sequence introduces the theory and techniques of electrical measurement. DC and AC indicating instruments and the operation and use of the oscilloscope are covered in the first part of the course. Experiments will relate to course work in ET 221 and ET 222.

3 hrs. laboratory

Prerequisite: ET 221, 222 — taken concurrently.

**ET 311, 312 3 credits each****Electronics II, III**

The use of BJTs and FETs as amplifiers. Biasing techniques and small-signal analysis of different amplifier configurations are developed. Cascaded stages, feedback amplifiers, differential amplifiers, and operational amplifiers (OP AMPS) are discussed. Large — signal power amplifiers are presented. Basic digital electronics — gates, flipflops, shift registers, counters, and different logic families are discussed.

3 hrs. lecture

Prerequisite: ET 212 or equivalent.

**ET 315 3 credits****Instrumentation**

Analysis of the operational characteristics of meters, oscilloscopes, spectrum analyzers, etc. will be discussed. Particular attention will be paid to the specification of these devices and to the analysis of the results of using them in engineering measurements and instrumentation.

3 hrs. lecture

Prerequisite: ET 222.

**ET 321, 322 3 credits each****Circuit Analysis and Design I, II**

Network topology, transient analysis, Laplace transform, filters, and computer techniques as applied to circuits.

3 hrs. lecture

Prerequisite: ET 222, CS 261.



**ET 332 3 credits****Transmission Lines and Waves**

This course begins with techniques for the calculation of capacitance, inductance, voltage breakdown, skin depth and demagnetizing fields. Wave propagation in free space is discussed and guided propagation via transmission lines is studied in detail. Subjects include standing waves, reflections, VSWR, impedance matching and the Smith Chart. The final subject area covered in this course is antenna theory and design. Gain, beamwidth, radiation resistance and effective area are explained. Various antenna configurations are discussed and analyzed.

3 hrs. lecture

Prerequisite:PH 102, MA 204.

**ET 341 3 credits****Electromechanical Energy Conversion**

This course covers essentially the basics of electromechanics as applied to energy conversion devices, followed by studies of specific devices such as dynamos and other transducers, including transformers. Mathematical models of typical physical devices are discussed.

3 hrs. lecture

Prerequisite:ET 222.

**ET 351, 352 1 credit each****Electrical Technology Laboratory III, IV**

This laboratory sequence will coordinate with the course work of the junior year. Emphasis will be on the investigation of nonlinear device characteristics and response.

3 hrs. lab

Prerequisite:ET 222.

**ET 415 3 credits****Digital Devices and Systems I**

Study of modern integrated logic circuits. Detailed electronic circuit analysis of single gates, using primarily the Transistor-Transistor-Logic (TTL) configuration. Use of these gates in the implementation of complex logic functions. Examples of medium and large-scale integrated logic circuits (MSI and LSI), including a study of Flip-Flops from the simple Latch through Master-Slave types. Arithmetic Logic Units and Memory systems.

3 hrs. lecture

Prerequisite:College level two-semester Electronics course.

**ET 416 3 credits****Digital Devices and Systems II**

Construction; analysis and operation of the discrete and integrated FET. Study of the basic gate in MOS, CMOS and SOS technology. Configuration and application of MSI circuitry, such as Flip Flops, Shift Registers, Scalars, Counters, etc. Examples of LSI circuitry, such as fixed and variable format, programmable and nonprogrammable memory systems.

3 hrs. lecture

Prerequisite:ET 415.

**ET 431 3 credits****Microwave Theory and Techniques**

Guided transmission of electromagnetic waves by means of coaxial and waveguide systems. Transmission line theory and the Smith Chart. The design of cavities, couplers, filters and attenuators. Microwave generation, detection and measurements. Fundamentals of microwave antennas, ferrite devices and semiconductor components.

3 hrs. lecture

Prerequisite:ET 332.

**ET 432 3 credits****Microwave Electronics**

A study of the microwave properties of ferrite and semiconductor materials and their applications to circulators, isolators, parametric amplifiers, multipliers, switches and phase changers. Klystrons, magnetrons and traveling wave tubes are also studied.

3 hrs. lecture

Prerequisite:ET 431.

**ET 451 3 credits****Electrical Technology Laboratory V**

Introduces the student to well-structured projects in the laboratory. The course consists of design projects and experiments of one to three weeks duration in the areas of digital electronics and microwaves, and will challenge the student to use the material learned in his other courses.

1 hr. lecture, 6 hrs. laboratory

Prerequisite:Senior standing.

**ET 452 3 credits****Design Project**

A continuation of ET 451 with more emphasis on self reliance. The course will consist of comprehensive laboratory design projects and experiments and will be as closely related to industrial experience as possible.

1 hr. lecture, 6 hrs. laboratory

Prerequisite:Senior standing.

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**ET 462 3 credits**

**Audio Engineering**

Audio signals, noise, and distortion. Recording and amplifying systems, transducers, sound measurements and noise control.

3 hrs. lecture

Prerequisite: Senior standing.

**ET 472 3 credits**

**Applied Communication**

Modulation, demodulation, sampling and multiplying are discussed.

Random-signal analysis is presented, and a survey of various digital communication systems is included.

3 hrs. lecture

Prerequisite: ET 312.



**David J. Creamer (Chairperson)**

(See faculty listing under Mechanical Engineering.)

Mechanical Engineering Technology encompasses the methods that are employed as well as the practice that is applied in the design, development, manufacture, operation and installation of machinery, boilers, structures, transportation equipment, heating and air-conditioning equipment as well as other equipment which involves the interaction of mechanical, electrical, fluid, and thermodynamic forces. Mechanical technologists not only translate the ideas of the engineers and scientists into reality but they also bring to the technological team a knowledge of practical production techniques. In industry, the mechanical technologist is frequently found in a supervisory position over technicians and draftsmen. Employment opportunities are with engineering design organizations, with public utilities, and with corporations dealing with manufacturing and production.

In addition to fundamental mechanical technology courses, the curriculum at SMU contains courses in mathematics, science, humanities and social science in order to prepare the student to assume a productive role in society upon graduation. During the first year, students develop the skill to produce production drawings by taking two courses in Graphics. The concentration in the second and third year is on basic mechanical engineering subjects and the fourth year is highlighted by a sequence of two courses in Machine Design which is complemented by an Engineering Technology Design Project course.

Students are encouraged to join and to participate in professional engineering organization activities and are offered early contact with practical problems through field trips to industrial concerns.

The Mechanical Engineering Technology curriculum is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology. A student chapter of the American Society of Mechanical Engineers exists at SMU to allow the students to begin their contacts with the professional society of practicing engineers and technologists.

## Requirements

First Year			Semester Credits:	First	Second
TM	101	102	Graphics I, II	3	3
MA	105	106	Technical Calculus I, II	3	3
PH	107	108	Basic Physics I, II	3	3
PH	103	104	Basic Physics Laboratory I, II	1	1
ENG	101	102	Freshman English I, II	3	3
CH	101		General Chemistry I	3	
CIS	261		Computer Programming-FORTRAN*		3
				16	16

\*Offered both semesters

Second Year			Semester Credits:	First	Second
MA	203		Technical Calculus III	3	
TM	217		Manufacturing Laboratory I	1	
TM	218		Manufacturing Laboratory II		1
TM	219		Manufacturing I	3	
TM	220		Manufacturing II		3
			Prerequisite: TM 219		
TM	231	232	Mechanics I, II	3	3
			Humanities/Social Science Electives	6	3
TM	222		Elements of Materials Science		3
TM	223		Elements of Materials Science Laboratory		1
MA	204		Differential Equations		3
				16	17

Third Year			Semester Credits:	First	Second
TM	302		Kinematic Analysis of Machines	3	
ET	221	222	Electric Circuits I, II	3	3
ET	251	252	Electrical Technology Laboratory I, II	1	1
TM	306	307	Mechanics of Materials I, II	3	3
TM	321	322	Thermodynamics I, II	3	3
TM	342	343	Mechanical Technology Laboratory I, II	1	1
			Humanities/Social Science Elective	3	3
			Technical Communications		
TM	332		Fluid Mechanics I		3
				17	17

Fourth Year			Semester Credits:	First	Second
TM	412	Instrumentation and Control Circuits	3		
TM	432	Dynamic Analysis of Machines	3		
TM	422	Machine Design I, II	3		3
		Technical Electives	3		6
		Humanities/Social Science Elective*	3		
TM	424	Mechanical Technology Design Projects			3
		Free Electives			3
				15	15

\* May be taken during either first or second semester, alternating with a technical elective, retaining 15 credits each semester.

#### Technical Electives

TM	405	Foundry Engineering
TM	411	Heat Transfer
TM	414	Heat Exchanger Design
TM	431	Internal Combustion Engines
TM	433	Fluid Mechanics II
TM	438	Design of Energy Conserving Systems
TM	445	Photoelasticity with Laser Applications
TM	456	Special Topics in Structural Analysis
TM	461	Experimental Stress Analysis Techniques
TM	462	Introduction to Quality Management
TM	496	Directed Study
CE	402	Engineering Economy
CIS	454	Computer Graphics
		(Requires instructor's approval)
IT	310	Process Analysis and Planning
IT	403	Tool Engineering
IT	411	Facilities Planning

Any Mechanical Engineering technical elective course may be used as a technical elective for the technology program. Students must obtain prior approval to register for an ME elective from the instructor of the course, except for the following courses for which no prior approval is necessary:

ME	471	Physical Metallurgy
ME	472	Metal Forming Operations
ME	473	Powder Metallurgy

Students who wish to select technical electives from other departments must receive prior approval from the Mechanical Engineering Department.



## Mechanical Engineering Technology Courses

### **TM 101 3 credits**

#### **Graphics I**

A study of the principles of orthographic projection; instrument and free-hand execution of multview drawing, auxiliary, sectional views, pictorial drawing and lettering. Introduction to dimensioning, fasteners, detail and assembly drawing, graphical mathematics, empirical equations, graphical calculus, and nomography are also covered.

Lecture 2 hours, laboratory 4 hours.

### **TM 102 3 credits**

#### **Graphics II**

A course in the graphical solution of problems involving space distances and relationships including auxiliary views, point line and plane relationships, method of revolution, curved surface, intersections and developments, vector applications, and mining applications.

Lecture 2 hours, laboratory 4 hours.

Prerequisite: TM 101.

### **TM 217 1 credit**

#### **Manufacturing Laboratory I**

This course is designed to familiarize machines and operations of manufacturing, serving as a supplement to TM 219.

Laboratory 3 hours.

### **TM 218 1 credits**

#### **Manufacturing Laboratory II**

This course consists of product design, process engineering, and production of a simple machine in the laboratory, serving as a supplement to TM 220.

Lecture 1 hour, laboratory 3 hours.

Prerequisite: TM 217.

### **TM 219 3 credits**

#### **Manufacturing I**

A study of materials, processes and equipment used in manufacturing to convert ideas into products, machines and structures economically. Topics include turning, shaping, planning, milling, broaching, grinding, forming, powder metallurgy, welding, and casting.

Lecture 3 hours.

**TM 220 3 credits****Manufacturing II**

Continuation of TM 219.

Topics include non-traditional machining, surface cleaning, surface finishing, heat treatment, numerical control, C.A.M., quality control, manufacturing management.

Lecture 3 hours.

Prerequisite: TM 219.

**TM 222 3 credits****Elements of Materials Science**

This course covers the engineering requirements of materials including atomic arrangements and atomic bonding, structural imperfections; metallic, organic and ceramic phases and their properties. Phase relationships, solid state reactions and modifications of properties through structural changes and stability of materials in service environment are also covered.

Lecture 3 hours.

**TM 223 1 credit****Elements of Materials Science Lab**

For students in Mechanical Engineering Technology.

Laboratory 3 hours.

**TM 231 3 credits****Mechanics I**

A course in the study of statics of particles and of rigid bodies in two and three dimensions; resultants and equilibrium of forces; centroids and centers of gravity; forces in beams and cables; analysis of structures; friction; moments of inertia of areas and masses. The vector method for the solution of problems is used where applicable.

Lecture 3 hours.

Prerequisite: PH 107.

**TM 232 3 credits****Mechanics II**

Kinematics and kinetics of particles and of rigid bodies, rectilinear and curvilinear motion, translation, rotation, plane motion; force, mass and acceleration, work-energy, impulse and momentum; consideration of three dimensional problems is given in this course. Methods of vector algebra are used in solution of problems where applicable.

Lecture 3 hours.

Prerequisite: TM 231.

**TM 302 3 credits****Kinematic Analysis of Machines**

Analysis of the relative motion of machine parts to determine displacement, velocity and acceleration are studies. Topics covered include equations of motion, instant centers of velocity, velocity and acceleration graphs and polygons, cams, rolling contact, gearing, flexible connectors, gear trains, translations, screws and dimensional synthesis.

Lecture 2 hours, laboratory 3 hours.

Prerequisite: TM 232.

**TM 306, 307 3 credits each****Mechanics of Materials I, II**

A study of the stresses and strains that occur due to tensile, compression and shearing forces. Shear and bending moment diagrams, investigation and design of beams, and deflection of beams are included. Statically indeterminate members, eccentrically applied load, torsion, and column action are also studied.

Lecture 3 hours.

Prerequisite: TM 231.

**TM 321, 322 3 credits each****Thermodynamics I, II**

Properties of substances, First and Second laws of thermodynamics; ideal gases; liquids and vapors; heat exchangers; steam turbines; and the reversed cycle, are topics included in the course.

Lecture 3 hours.

Prerequisite: MA 203.

**TM 332 3 credits****Fluid Mechanics I**

This course covers hydrostatics and hydrodynamics; ideal viscous fluids; compressible and incompressible fluids; flow of real fluids in pipes and around immersed objects, boundary layer, lift and drag, flow measurement.

Lecture 3 hours.

Prerequisite: TM 321.

**TM 342, 343 1 credit each****Mechanical Technology Laboratory I, II**

A basic laboratory course designed to familiarize the student with basic definitions, physical concepts and testing procedures. The first portion is devoted to experiments in strength of materials and general techniques of mechanical testing of materials. The second portion concentrates on measurements in heat/power and fluid flow. Throughout emphasis is placed on the proper presentation and interpretation of data.

Laboratory 3 hours.



**TM 405 3 credits****Foundry Engineering**

The course consists of a brief but comprehensive presentation of various aspects of foundry operation. Topics include molding, core, casting design, pattern design, solidification, feeding systems, metal melting, cleaning, inspection, mechanization, economics, and management.

Lecture 3 hours.

Prerequisites: TM 219, TM 222.

**TM 411 3 credits****Heat Transfer**

This course contains a study of steady state conduction; free and forced convection; radiant heat transmission; and the design of heat transfer equipment.

Lecture 3 hours.

Prerequisite: TM 322.

**TM 412 3 credits****Instrumentation and Control Circuits**

Analysis and design of operational circuitry and measurement of non-electrical quantities, and the study of transducers contribute the basis for this course.

Lecture 3 hours.

Prerequisite: ET 222.

**TM 414 3 credits****Heat Exchanger Design**

Following a general description of heat transfer devices, the following topics are presented: heat exchanger performance analysis and design procedure; heat transfer surface analysis; importance of various design parameters and optimization processes; geometrical configurations of various heat exchangers; specific applications of various heat exchangers with temperature dependent fluid properties; flow nonuniformity on the performance of heat exchangers; heat exchanger tests.

Lecture: 3 hours

Prerequisite: TM 411

**TM 422 3 credits****Machine Design I**

A survey of the methods, simplified and sophisticated, which can be applied in the broad field of mechanical equipment design. Presentation of the subject matter, whenever possible, features the distinction between the levels of sophistication appropriate for a given design situation. In assignments, the student is encouraged to make design decisions which serve to

prepare him for the experiences that he is likely to encounter in the design project course, and as an engineer upon graduation. Some of the areas covered are: design procedures, simple stress analysis, varying stresses, stress concentration, combined stresses, design of fasteners and springs. Lecture 3 hours.

Prerequisite: TM 307.

### **TM 423 3 credits**

#### **Machine Design II**

A continuation of Machine Design I. Areas covered include lubrication; sliding and rolling contact bearings, shaft design; gear design; flexible connectors and clutches.

Lecture 3 hours.

Prerequisite: TM 422.

### **TM 424 3 credits**

#### **Mechanical Technology Design Projects**

The student will propose a special design project and upon approval will pursue an investigation of the chosen problem. Investigation and creativity are encouraged in the design process. A final report with recommendations and specifications will be submitted at the conclusion of the course.

Lecture 1 hour, laboratory 6 hours.

Prerequisite: TM 423 concurrently.

### **TM 431 3 credits**

#### **Internal Combustion Engines**

A study of the internal combustion engine processes, including the air standard cycle analysis; engine cycles; deviation of the real engine from the ideal engine; detonation, carburetion; fuel injection, combustion chamber and cylinder head design; engine lubrication; cooling and performance.

Lecture 3 hours.

Prerequisite: TM 322.

### **TM 432 3 credits**

#### **Dynamic Analysis of Machines**

The course covers the fundamental principles of dynamics of machines.

Topics covered include: static forces in machines, inertia forces in machines, fly-wheels, balancing rotating and reciprocating masses, gyroscopic effects, critical speeds of shafts and the determination of natural frequencies and mode shapes of multidegree of freedom systems. A

weekly laboratory session involves experiments dealing with balancing, resonance, analog computer simulation, sound measurements and digital computer techniques.

Lecture 2 hours, laboratory 3 hours.

Prerequisite: TM 232.

### **TM 433 3 credits**

#### **Fluid Mechanics II**

Torque in rotating machines, system curves, specific speed and similarity laws. Selection of turbines to suit various conditions of operation including small hydroelectric plants. Centrifugal and axial flow pumps, pump selection, cavitation and special problems of pump installation. The course concludes with compressible flow in fans and blowers.

Lecture 3 hours.

Prerequisite: EN 232, ME 332.

### **TM 438 3 credits**

#### **Design of Energy Conserving Systems**

The course covers the mechanical and thermal aspects of power-systems designed for the efficient conversion of energy resources. Design and selection of specific pieces of equipment for energy conservation is emphasized.

Lecture 3 hours.

prerequisites: TM 321, TM 322.

### **TM 445 3 credits**

#### **Photoelasticity with Laser Applications**

The course is divided into two equal parts, photoelasticity and laser applications in engineering. The first part of the course is concerned with polarized light and its use in stress analysis. The student will be introduced to the techniques and instruments used in photoelastic analysis of stressed models. Current use of industrial photoelasticity will be emphasized. Laser applications in engineering comprise the second half of the course. A review of ray optics, refraction, reflection and lenses serve as an introduction to laser light properties. This portion is followed by simple demonstrations with the laser. The course concludes with an introduction to holography and current industrial applications.

Lecture 3 hours.

Prerequisite: TM 307.



**TM 456 3 credits****Special Topics in Structural Analysis**

The course consists of the analysis of a series of existing problems related to structures in the deep ocean environment. The first quarter of the course will be devoted to review of mechanics of materials. The remaining portion of the course will cover practical problem solving in the areas of stress analysis. Emphasis will be placed on introducing the student to the analysis, selection and interpretation of current handbooks and codes, concluding with a design. The techniques introduced and the philosophy of design will be of a general nature, applicable to many areas of concern to Mechanical Engineers or Technologists.

Lecture 3 hours.

Prerequisite: TM 307.

**TM 461 3 credits****Experimental Stress Analysis Techniques**

The course is divided into two major parts. The first part of the course deals with theory and practice of photoelastic methods which are applied to classical experimental stress analysis of models and are modified for use in photoelastic coatings. Three dimensional problems are studied and solved by the use of the digital computer. Emphasis is on the interpretation, limitations and designing by photoelasticity. The second part of the course presents the theory and application of mechanical and electrical strain gauges, and brittle coatings. Installation, instrumentation and circuitry of gauge set-ups or transducer use in experimental stress analysis are discussed.

Lecture 3 hours.

Prerequisite: ME 252.

**TM 462 3 credits****Introduction to Quality Management**

This course is designed to acquaint students with quality management concepts and techniques to promote an overall understanding of the quality control function. The tasks of quality management are explained and discussed. Examples derived from actual experience will be presented.

Lecture 3 hours.

Prerequisite: Senior standing.

**TM 496 3 credits****Directed Study**

A student works under the direction of a faculty member and pursues a specific line of study in an area of interest to the student. The work may deal with subject matter not normally available in the curriculum, or may involve a design project.

Lecture/laboratory arranged as required.

Prerequisite: Senior standing.

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## **Industrial Technology Courses**

**IT 310 3 credits****Process Analysis and Planning**

Beyond the design stage, the development and coordination of plans for manufacturing is called process engineering. This course deals with the problems of determining the principal and specific processing sequence for manufacturing in the hardware industry. Casting or modeling, cutting, forming and assembly equipment is selected for the processing sequence after a geometric and functional work-piece analysis has been conducted.

Standard equipment, special equipment, and inspection tooling are discussed in detail to facilitate their selection for processing materials into useful products. Selected plant tours reinforce the topic coverage.

Lecture 3 hours.

Prerequisite: TM 220.

**IT 403 3 credits****Tool Engineering**

A study intended to provide a basic understanding of the fundamental force, energy and wear characteristics involved in tool operations as related to the economics of the manufacturing processes. Topics covered include: characteristics of material behavior, metal cutting and forming and manufacturing economics. Design and analysis of the following tools are considered: single-point tools, axial-feed rotary tools; press-working tools including piercing, blanking, compound and progressive dies, and work-holding devices.

Lecture 3 hours.

Prerequisite: Senior standing.

**IT 411 3 credits****Facilities Planning**

The continuing development of a master plan for production is essential if meaningful progress is to be sustained in manufacturing plants. In Facilities Planning we examine primarily the techniques employed in the resolution of materials handling and equipment layout problems. In addition the contributions of product engineering, method engineering, and production planning and control are considered for their effect on the overall manufacturing master plan.

Lecture 3 hours.

Prerequisite: IT 310.



# College of Nursing



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The College of Nursing is approved by the Massachusetts Board of Registration in Nursing and accredited by the National League for Nursing.

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## **The Nursing Degree**

Nursing is a humanistic profession that is both an art and a scientifically based process.

The Profession of Nursing provides many health care services to people of all ages, stages, and walks of life.

Nursing is concerned with maintaining and promoting health, restoring health, preventing illness, providing care and comfort and supporting the dignity of human beings through the dying process.

Nurses determine health needs of individuals, families, and communities and make decisions regarding the appropriate action to be taken. They collaborate and cooperate with other members of the health team such as the physician, social worker, physical therapist, dietitian, dentist, pharmacist, and occupational therapist. The nurse plays an important role in the guidance, coordination, and direction of the health care which is provided to society.

Since professional nurses are expected to provide the leadership for all nursing personnel, they need a broad background of knowledge and of clinical skills. Given the need for such a broad background in the arts and sciences, as well as in nursing, the American Nurses' Association (representing nurses throughout the United States) recommends the baccalaureate program as the basic educational foundation for professional nursing practice. Prospective nursing students should take note of that fact, because while it is possible to move from one type of program to another, the process can be costly and time consuming.

The College of Nursing at Southeastern Massachusetts University offers the only four year baccalaureate program in southeastern Massachusetts. Graduates are awarded the Bachelor of Science in Nursing degree and are eligible to take the licensing examination to become registered nurses. They are prepared to practice nursing in a variety of settings, including community agencies, hospitals, public health organizations, industry, and the military services. Graduates are also well prepared for graduate study.

## Faculty and Fields of Interests

### Department of Community Nursing:

**Judith Clark** maternal-child health nursing

**Ora de Jesus** geriatric nurse practitioner

**Ann Marie Hedquist** nutrition

**Maureen Hull (chairperson)** community health nursing

**Teresa Kellermann** psychiatric nursing

**Carol Mailloux** maternity nursing clinical specialist

**Sonja Peterson** psychiatric nursing

**Joan Pisarczyk** community health nursing

**Linda Spink** psychiatric nursing

### Department of Institutional Nursing:

**Ellen Christian** maternal-child health

**Phyllis Currier** adult nursing

**Mary Ann Dillon (chairperson)** pediatric nursing

**Nancy Dluhy** medical-surgical nursing

**Janice McKeachern** rehabilitation

**Mary Nanopoulos** medical-surgical nursing

**Rita H. O'Neill** rehabilitation

**Joyce Y. Passos (Dean)** medical-surgical nursing

**Ann Tschirch** medical-surgical nursing



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## Objectives

The graduate of the SMU College of Nursing:

1. Understands and exhibits the attributes of an educated, healthy, informed citizen.
2. Implements the concept of professional responsibility and accountability for self and colleagues as a basis for delivery of health care.
3. Synthesizes theoretical and empirical knowledge from the humanities, the physical and behavioral sciences and nursing as a theoretical base for assisting client systems to achieve optimal level of functioning.
4. Understands the research process and applies research findings to nursing practice.
5. Provides nursing care utilizing the nursing process of assessment, goal setting, planning, implementing and evaluating the results of nursing intervention for individuals, families and communities.
6. Manages, collaborates or participates in the delivery of nursing care to the well and to the acutely, chronically and terminally ill, at any age or stage of development, irrespective of environment or client system level.
7. Participates in identifying and effecting needed change to improve delivery of health care to all client system levels as a result of accurate and reliable interpretation of valid data.

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## Course of Study

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### Lower Division Pre-Nursing Program

During the first two years of the lower division pre-nursing program the student studies subjects that provide a general and diversified academic foundation which is basic to the study of nursing. The last two academic years focus primarily on the studying and practicing of nursing, both on the SMU campus and in many health care facilities and agencies. In order to continue to the upper division nursing curriculum, nursing students must complete all required courses during the first two years and achieve at least a 2.0 cumulative grade point average.

During the first two years of the nursing program, the student completes the following course requirements for admission to the first clinical nursing course:

1. English .....	6 credits
2. Humanities .....	6 credits
(Courses in English, Philosophy, History, Art History, Music Appreciation, and Modern Languages fulfill the Humanities requirement)	
3. Social Sciences.	
Psychology .....	3 credits
Sociology .....	3 credits
Additional courses in Psychology, Sociology, Political Science, Economics, or Anthropology .....	6 credits
4. Sciences.	
Fundamentals of Biology .....	6 credits
General Chemistry .....	6 credits
Anatomy & Physiology .....	8 credits
Medical Microbiology .....	4 credits
5. Disease and Pharmacology .....	3 credits
<b>Total. ....</b>	<b>51 credits</b>

The passing grade for all required courses is a "C" (2.0) or better.

Eligibility for progression into the first clinical nursing course is determined in the Spring semester of the student's sophomore year by the College of Nursing Administrations and Promotions Committee.

Selection is based on the following criteria:

1. Completion of at least 57 credits including the required courses.
2. "C" (2.0) or better in all courses except free electives.
3. Cumulative grade point average at least 2.0.

Selection of qualified applicants for the upper division nursing program may be limited by the availability of faculty and clinical facilities. In the event that the number exceeds the available resources, students will be selected on the basis of academic standing.

The first two years of the nursing program include enough free electives to allow students to pursue special interest or to take additional courses in the humanities, the biological, physical, or social sciences. Therefore, students have an opportunity to transfer into a major field other than nursing, should they choose to do so.

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## Upper Division Nursing Program

The upper division nursing program is structured according to three levels of complexity of nursing care.

At the first level, the simplest, the students are taught to interact with individuals through the successive phases of the nursing process. At the completion of this level, they should have acquired the skills in observation and communication necessary to an assessment of the individual's nursing needs; they should be able to set concrete and realistic goals of nursing care, and to devise a plan of action susceptible of leading to the attainment of these goals. The students are expected to have acquired the basic nursing skills necessary to implement the nursing care plan. Finally, the students should be able to evaluate the outcome of nursing care in the light of goals previously set; they would then modify the steps of the nursing process accordingly, or set more ambitious goals.

At the second level, the students are taught to interact with other health care providers and with the individual's family as well as with the individual. The resources afforded by these persons in the individual's behalf are utilized by the nurse at each stage of the nursing process. It is expected that at the completion of this level, the students will be able to give intelligent nursing care to acutely ill patients and to persons needing supportive nursing care in the hospital or home.

At the third and most complex level, the students are taught to interact with those persons constituting all levels of the hospital structure, and with those responsible for the social and welfare agencies having a bearing on the distribution of health care. It is expected that at the completion of this level the students will attempt to mobilize the resources of the health care systems for the improvement of nursing. The professional nurse should not only be able to give good nursing care, but also be responsible for ensuring that it is made available to those who need it.

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## Typical Program Plan

The nursing program is eight semesters long, and leads to the Bachelor of Science in Nursing degree. RN's may shorten their programs by successful challenge exams.



The Nursing program is eight semesters long, and leads to the Bachelor of Science in Nursing degree. RN's may shorten this program by successful challenge exams.

First Year			Pre-Nursing Program	Semester Credits:	First	Second
ENG	101,	102	Freshman English		3	3
BO	151,	152	Fundamentals of Biology*		3	3
CH	101,	102	General Chemistry*		3	3
			Social Sciences**		3	3
			Free Electives***		3	3
					15	15
Second Year				Semester Credits:	First	Second
BO	221,	222	Anatomy-Physiology		4	4
	223,	224				
BO	252		Medical Microbiology		4	
NU	303		Selected Mechanisms of Disease and Related Pharmacology			3
			Social Sciences**		3	3
			Free Electives***			3
			Humanities****		3	3
					14	16

**\*Natural Sciences.** Students must maintain a minimum grade of "C" in each Natural Science course. One Natural Science grade below "C" may be repeated. A second Natural Science grade below "C", excluding laboratory sections, will constitute disqualification from the Nursing major.

**\*\*Social Sciences.** All students must have at least one course of Psychology and one of Sociology. The balance for Social Science requirements (two additional courses) may be taken in Psychology, Sociology, Political Science, Economics, Anthropology, and Women's Studies.

**\*\*\*Free Electives.** Students may elect any available course for which they qualify. Students may wish to select their elective courses so as to be eligible for another major of their choice, should they change their career plans.

**\*\*\*\*Humanities.** Courses in English, Philosophy, History, Art History, Music Appreciation, Modern Language, and Women's Studies fulfill the Humanities requirements.

To be eligible for the junior year, the student must have completed all required courses and have earned a minimum of 51 credits. A "C" or better in all courses, except free electives and at least a 2.0 cumulative grade point average.

The program may be shortened by successful challenge exams, and any of the following means:

Distribution and elective credits may be earned other than as a matriculated SMU student:

1. By approval of credits from official transcript of work in other institutions. Faculty have the right to impose time limits on the acceptability of credits presented by transfer to meet requirements for SMU degrees. Effective November 1980, *time limits on the acceptability of transfer credits for the nursing major* are as follows:

English, Social Sciences  
Humanities, Electives  
Natural Sciences

No Time Limit  
No Time Limit

Any course which satisfies the Natural Science distribution requirement must have been completed no more than seven (7) years prior to the date of admission.

2. By achieving at least the 50th percentile on a written CLEP (College Level Examination Program) Subject Examination.

3. Once matriculated at SMU, by cross-registration in one of the consortium of area colleges. SACHEM is the Southeastern Association for the Cooperation of Higher Education in Massachusetts, and include the following:

Stonehill, Bridgewater State Colleges; Bristol, Cape Cod, Massasoit Community Colleges; Massachusetts Maritime Academy; Dean Junior College; Swain School of Design. (Contact Registrar's Office)

4. By taking the SMU Biology Department's teacher-made tests in:

Anatomy-Physiology  
Medical Microbiology

Offered twice/year - Early November and Early April  
Passing score - a minimum grade of 73 percent in each test.  
A fee will be charged for testing.

Biology Department teacher made tests are available only:

1. to non-RN transfer applicants with science background who have the approval of the transfer nursing advisor, and
2. to RN's at any time prior to enrolling in NU 305-315 (See Section 111).

Challenge exams may be taken only once.

Third Year			Nursing Program	Semester Credits:	First	Second
NU	300,	310	Basic Principles of Professional Nursing	12		
NU	304		Selected Mechanisms of Disease and Related Pharmacology II	3		
			Prerequisite: NU 303			
NU	306,	316	Parent Child Nursing			12
			or			
NU	308,	318	Nursing the Adult Patient			
			Free Electives			3
					15	15
Fourth Year				Semester Credits:	First	Second
NU	306,	416	Parent Child Nursing	12		
			or			
NU	403,	413	Advanced Nursing Process***	(6)		
NU	408		Issues in Professional Nursing			2
NU	409,	419	Nursing Management of Complex Health Problems			12
			Free Electives	3		3
					15	17
Total credits: 122						

#### For RN Students

All prerequisites must be completed prior to registration for upper division courses.

NU	305	315	(In lieu of NU 300-310)*	required	6
NU	303	304	Selected Mechanisms of Disease and Related Pharmacology	**	6
NU	306	316	(416) Parent Child Nursing	**	12
NU	308	318	(418) Nursing the Adult Patient	**	12
NU	403	413	Advanced Nursing Process	required	6
NU	409	419	Nursing Management in Complex Health Problems	required	14
					56
*NU	305	315	Foundations of Professional Nursing I & II		6

This is the first required clinical course in the nursing major for **RN's only**, to be offered **only** through the Division of Continuing Studies. Students are required to be matriculated (I.E., formally admitted to SMU in the nursing major), and they must have presented evidence of completion of all prerequisites in the Pre-Nursing Program to the RN advisor.



Summer Semester: 6 hours/week — class: 18 hours/week — arranged clinical experience.

**\*\*All registered nurse students who enroll in NU 305-315 are required to take examinations to challenge 30 credits at the 300 level in the nursing program. Examinations will be taken on successful completion of NU 305-315; successful performance on nursing challenge exams makes the student eligible for the 400 level nursing courses.**

Please note the following:

1. A minimum grade of C (2.0) is required to pass each nursing course. Clinical practice component of each course is graded on a pass/fail basis. Both theory and practice must be passed to pass the course. Letter grade earned in theoretical component is the grade recorded for both components.
2. Any failed nursing course may be repeated only on the recommendation of faculty.
3. One failed course may be repeated only once. A subsequent failure in any nursing course results in dismissal from the College.
4. Complete physical examination and appropriate immunizations are expected of students prior to clinical courses in Junior and Senior years.
5. Professional liability insurance and, current Massachusetts Licensure are required for RNs prior to enrollment in nursing courses.
6. Students are expected to provide their own transportation to clinical agencies.

### **Graduation Requirements**

1. Satisfactory completion of at least 60 course credits at SMU
2. Cumulative grade point average of at least 2.0.
3. G.P.A. in all nursing courses at least 2.0.
4. Certification in C.P.R.

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## **General Information**

### **Admission To the Pre-Nursing Program**

Students are admitted to the Pre-Nursing Program through the University Office of Admissions. Applicants to the Pre-Nursing Program, in addition to fulfilling the requirements for all University students, must have had a secondary school program including at least three units of mathematics, and two laboratory courses of natural sciences. The three units of mathematics must include two units of algebra.

### **Admission To The Upper Division Nursing Curriculum**

Students are admitted to the upper division nursing courses after they have successfully completed the lower division pre-nursing course requirements, or transferred credits have been evaluated as equivalent.

Eligibility for admission or progression into the upper division nursing program is determined in the spring semester of each academic year, by the College of Nursing Admissions and Promotions Committee. For students who enter SMU as Freshmen, this review is done in the sophomore year. Selection is based on the following criteria:

#### **By the end of spring semester sophomore year:**

1. Completion of at least 57 credits, including the 51 prerequisite base.
2. C (2.0) or better in all courses except free electives.
3. Cumulative grade point average of at least 2.0.

Selection of qualified applicants for the upper division nursing program may be limited by the availability of faculty and clinical facilities. In the event that the number exceeds the available resources, students will be selected on the basis of academic standing.

The pre-nursing program includes enough free electives to allow students to pursue special interests, or to take additional courses in the humanities, the biological, physical or social sciences. Therefore, students have a solid basis for transfer into a major field other than nursing, should they choose to do so.

### **Admission of Transfer Students and Registered Nurses**

Registered nurses holding either a nursing diploma or an Associate Degree may obtain a B.S. in Nursing degree at the Southeastern Massachusetts University College of Nursing. Registered Nurses and students having attended other colleges must meet the same entrance requirements as those who apply to the pre-nursing program.

Credits (C or better) earned in another college may be accepted as transfer credits after evaluation of official transcripts. Science credits earned more than seven years prior to formal admission into the University cannot be transferred. The required science courses must then be repeated, or verified by examination.

Registered nurses, and other applicants for transfer admission whose transcripts contain course work in the biological sciences which is difficult to evaluate, may write tests offered by the Department of Biology and, if successful, will be excused from the courses in Anatomy and Physiology

and Microbiology, and be granted the corresponding credits. In addition, credits may be earned by successfully writing the appropriate CLEP examinations open to all University students.

Registered nurses, after they have successfully completed NU 305 and 315, may challenge NU 306 and 316 and NU 308 and 318 and are given the corresponding credits. NU 303 and 304 may also be challenged.

### **Health Policies**

Students admitted to the nursing program are expected to have a complete physical examination and the appropriate immunizations during the spring preceding their junior and/or senior year clinical courses.

### **Grading Policy**

Each nursing course must be satisfactorily completed with a C (2.0) or better in order to enroll in another nursing course.

Each nursing course consists of two components: 1) theory, 2) practice. The clinical practice component of each course is graded on a pass/fail basis. The letter grade earned in the theoretical component for each course is the grade recorded for both components and submitted to the Registrar. A failure in clinical practice automatically entails the failure of both components of the course.

A student who fails a nursing course may not proceed without having successfully repeated the failed course. Repeating students may enroll in the previously failed course only on faculty recommendation. A failed course may be repeated only once. A subsequent failure in any nursing course will result in dismissal from the College of Nursing.

An overall average of C (2.0) is required for graduation. A "C" (2.0) average is also required in the nursing major for graduation.

Incomplete grades will be handled on an individual basis.

Students are responsible for being certified for CPR by the end of NU 300. Certification is to be renewed annually and is prerequisite to graduation.



## **Nursing Courses**

### **NU 100 3 credits**

#### **Contemporary Health Issues-TV Course**

Many health problems are self-inflicted. Course is designed to counteract apathy and dispel myths through accurate health information. Topics include emotional health, human sexuality, personal health, disease and chemical alterations of behavior. Nursing elective; may fulfill elective credits for non-majors. No prerequisites.

### **NU 105 3 credits**

#### **Human Nutrition**

The purpose of the course is to introduce the student to the principles of human nutrition. Main classifications of nutrients will be covered with emphasis on their role in health maintenance. Factors which affect the nutritional status of individuals, including stage in the life cycle, will also be introduced along with current nutritional problems in the U.S. May fulfill elective credits for non-majors. Elective for Nursing majors.

### **NU 109 3 credits**

#### **Introduction to Public Health**

Provides an overview of structure, organizational function and administration of community health agencies at state, local, regional and federal levels. The physical, sociological, political and environmental aspects of public health as well as control of communicable and chronic diseases are examined. Nursing elective; may fulfill elective credits for non-majors. No prerequisites.

### **NU 151 3 credits**

#### **Understanding and Care of the Elderly**

Focuses on knowledge of the aged and the aging process to facilitate continued development of awareness, sensitivity and skill in the care of the elderly. Designed for those who work in direct care services. Nursing elective; may fulfill non-nursing elective credits. Not open to nursing majors who have taken NU-160. No prerequisites.

### **NU 160 3 credits**

#### **Meaningful Motivation of Elders**

Course provides a working foundation for helping elderly to retain or develop active and meaningful pursuits during retirement. Focuses on identity crisis, goal-orientation and support, personality reconstruction and methods of meaningful motivation. Nursing elective; may fulfill elective credits for non-majors. Not open to nursing majors who have taken NU 151. No prerequisites.

**NU 205 3 credits****Interpersonal Skills in Human Relations**

Knowledge of communication skills which will provide effective approaches and interventions in dealing with others. Opportunity to learn and internalize the interpersonal relationship necessary in dealing with everyday human behaviors. No prerequisites.

**NU 207 3 credits****Women's Health Issues**

A general course about women's health needs and physiological events during the various stages of life. Focus is on providing basic health information related to women's reproductive capacity. Nursing elective; may fulfill elective credits for non-majors. No special conditions or prerequisites.

**NU 219 3 credits****Health Promotion for Developmentally Delayed Children**

Examination of health needs of developmentally disabled children and strategies to promote optimal level of functioning. Child and family are presented as a healthy unit with potential to adapt to a variety of stresses. Societal context within which the child grows and develops is presented as a major influence on the level of function obtained. Nursing elective; may fulfill elective credits for non-majors. No prerequisites.

**NU 300 12 credits (Lab 310)****Basic Principles of Professional Nursing**

Three main themes are identified in this course which become the basis for development as a professional nurse: the nursing process as the basic tool of nursing practice, use of self in relationship to others in the health care system, and stress adaption and optimal level of functioning which provides a knowledge base for delivery of nursing care. The focus of the clinical experience is on the care of the individual. Prerequisite: pre-nursing program. Fall Semester only

**NU 305 6 credits (Lab 315)****Foundation of Professional Nursing**

For RN's only. The focus is the same as NU 300. Summer only

**NU 303-304 6 credits****Selected Mechanisms of Diseases and Related Pharmacology I & II**

These two courses will center on psycho-physiological and pharmacological aspects that apply to all nursing practice. Placement: NU 303 second semester sophomore year. NU 304 first semester junior year (successful completion of NU 303)

**NU 306 12 credits (Lab 316 or 416)****Parent Child Nursing**

The student applies the nursing process to the care of parents, children, and family members in collaboration with members of the health team. Clinical experience in a variety of institutional and community agencies.

Prerequisites: NU 300, 303, 304.

**NU 308 12 credits (Lab 318 or 418)****Nursing the Adult Patient**

The student develops further skills in utilizing the nursing process to assist the adult who faces barriers to optimal level of functioning. Students have clinical practice in various community and institutional settings where ill adults are located.

Prerequisites: NU 300, 303, 304.

**NU 322 4 credits****Extended Assessment Skills for Nurses**

Provides registered nurses with didactic instruction and practice in physical examination skills, obtaining a health history, and recognizing abnormal findings.

Prerequisites: must have a current R.N. license

Summer semester only

**NU 380 3 credits****Nursing Work Study Experience Seminar**

To help students apply newly acquired theory to practice under actual working conditions. Students enrolled must be employed by a participating agency, and will work assigned shifts. Seminar schedule is negotiated by faculty with employers. Focus of seminar directed by concerns and problems identified by students. Nursing elective.

Prerequisites: NU 300-310; NU 306-316 or NU 308-318

Summer semester only

**NU 403 6-10 credits (Lab 413)****Advanced Nursing Process**

Required for RN's. Advanced nursing process is designed: (1) to enable the senior nursing student to participate in the care of people with complex health problems, and (2) through the use of nursing process, literature search, and selected research techniques, to identify criteria for selection/design and evaluation of interventions appropriate to a single complex problem focus.

Prerequisites: NU 305, NU 303-304, NU 306, NU 308 or successful challenge of appropriate courses:



**NU 405 3 credits****Nurse As Manager**

Course promotes the nurse to function in a beginning management role. Principles of management, group behavior and interpersonal relationships will be applied to nursing theory, describing a patient-centered approach to management of a nursing unit. Nursing elective; may fulfill elective credits for non-majors. Prerequisites: Registered Nurses or approval of instructor.

**NU 408 2 credits****Issues in Professional Nursing**

Assists senior nursing students to make the transition to the professional nurse role and its responsibilities. Focuses on contemporary issues and trends pertinent to professional nursing practice, including health legislation. A variety of teaching methods used, including student participation in an A-V seminar.

Prerequisites: concurrent with NU 409-419 12 credits; completion of all other required NU courses.

Spring semester only

**NU 409 12 credits (Lab 419)****Nursing Management in Complex Health Problems**

Course content will include criteria for defining and managing complex health problems; the leadership role in beginning practice; and research in nursing practice. Management of selected complex problems will occur for each student in both institutional and community settings and will address the goals of primary, secondary, and tertiary prevention.

Prerequisites: all other nursing courses.

Spring semester only

# College of Visual and Performing Arts



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The College of Visual and Performing Arts is a comprehensive arts college with Departments of Art Education, Art History, Fine Arts, Design, and Music. Courses are also offered in theatre. The art programs are accredited by the National Association of Schools of Art and Design. The following degrees are given by the college: Bachelor of Fine Arts in Art Education, Fine Arts, Textile Design and Visual Design, Bachelor of Arts in Art History, and the Bachelor of Music. In addition, the College offers programs leading to the Master of Fine Arts and the Master in Art Education degrees.

The undergraduate college presents a professional education in art for the development of a high degree of initial professional competence in the arts. Courses in a wide variety of studio areas as well as supplemental courses in art history give a broad perspective to the student and his or her understanding of the role of arts in human experience. Additional courses in English and sciences, plus elective courses in humanities and social sciences, are required for graduation.

Majors are offered in the following studio areas: Painting, Printmaking, Sculpture, Textile Design (concentration in Weaving or Printmaking), and Visual Design (concentration in Graphic Design, Illustration, Photography, or Ceramics). A major in Art History includes a spectrum of courses in the various fields and periods of Western art history plus non-Western art as well. The major in Art Education prepares students who wish to teach in the public schools or work in public and private agencies.

The Music Department offers a Major as well as a Minor in the history, theory, and practice of music. An audition is required of all music majors before acceptance into the program.

The graduate program in Visual Design is professionally oriented, designed to develop the individual abilities and interests of the student toward the goal of professional involvement in the field of visual design.

The Art Education Department offers the degree of Master in Art Education which has several components for the in-service art teachers, the fine arts major, and the continuing art education major. Particulars of both Graduate Programs can be found in the Graduate Catalog.

### **Retention of Student Work**

The College of Visual and Performing Arts maintains the right to retain student class work for teaching and exhibition purposes. Every effort will be made to see that this right is not abused and that it is exercised equitably.

### **Course Prerequisites**

Most courses in The College of Visual and Performing Arts are sequential. As a result, it is necessary that a student complete the appropriate course prerequisites before expecting to register in any course offered by the



College. Students will be expected to meet all course prerequisites or their equivalent unless specifically waived of this requirement for a particular course by the chairperson of the department in which the course is offered. Course prerequisites are noted in the catalogue course descriptions when appropriate.

### **Studio Credit/Class Hour Requirements**

Studio art courses require three hours of work per week for each hour of credit. In most studio art courses two hours per credit a week are scheduled in class, and the third hour is the individual student's responsibility to complete in addition to the regularly scheduled class time. Courses which require a model or special facilities have the three required hours per credit per week scheduled in class.

### **Advanced Placement**

Credit for equivalent courses will be awarded for grades of three or above. (AP exams are graded on a 1-5 scale.)

Such credit may be used to satisfy distribution requirements or as elective credits outside the major field of a degree candidate or to allow omission of equivalent SMU courses.

### **Degree Requirements**

To fulfill the requirements for the various undergraduate degrees, the student must complete programs of study involving the following total semester credit hours:

Art Education	126
Fine Arts	127
Textile Design	126
Visual Design	126
Art History	123
Music	122-124

Each major program involves at least thirty credit hours of Liberal Arts courses and twelve hours of Art History courses in addition to its major and elective studio courses.

All first-year students in the College of Visual and Performing Arts are required to take Freshman English (ENG 102 -102) a two-semester course in the basic skills of written and spoken communication, unless specifically exempted by an advanced placement test administered by the Department of English.

A science elective (2 courses, 6 credit hours) is required in all programs of the College, and each student is required to complete a minimum number of credit hours of humanities and/or social science electives in all major programs. To meet this requirement, students normally select courses from both the humanities and social sciences.

### **Cumulative Average**

To be eligible to graduate, the student must have achieved at least a 2.0 cumulative average (C) for his or her entire program with a minimum of 2.0 in his or her major field of study.

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## **Requirement for Masters of Fine Arts Degree**

To fulfill the requirements for the Master of Fine Arts degree, the student must complete a program of studies totaling sixty semester credit hours with at least a 3.0 cumulative average (B) for his or her entire program. Of the total program, six credit hours are devoted to a thesis project in which the student must develop and present a comprehensive problem in visual design which is evaluated according to the highest professional criteria.

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## **Requirements for Masters of Art Education Degree**

The Master of Art Education Degree is offered through the Division of Continuing Studies. The *Graduate Catalog* contains information pertinent to this degree.

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## **Foundation Program**

The Foundation Studio Courses (AR 100 courses) are required of all Art Majors and are a prerequisite for all AR 200, or higher courses in Fine Arts, Visual Design, Textile Design, and Art Education. These studio courses deal on a primary level with all of the necessary prerequisites for the in-depth study of any of the sophomore option areas offered by the College. Emphasis on drawing skills through organic and non-organic subject matter, as well as a probe of conceptual approaches, are designed to develop a perceptive sensitivity to composition and the order of design elements. AH 101, Ancient and Medieval Art, and AH 102, Renaissance to Modern Art, are required art history courses, and together with AH 345, Development of Modern Painting (scheduled for the second year), provide an historical survey of the art of the Western world.

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**First Year Curriculum for all Art Majors (Except Art History)**


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First Year			Semester Credits:	First	Second
AR	110,	112	Foundation Drawing	3	3
AR	114,	115	2D Workshops I and II	2	2
AR	124,	125	3D Workshop I and II	2	2
A-H	101		Ancient and Medieval Art	3	3
	or		or		
A-H	102		Renaissance to Modern Art	3	3
ENG	101,	102	Freshman English	3	3
			Social Science Elective	3	3
				16	16

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**Foundation Courses**
**AR 110 3 credits****Foundation Drawing**

A studio exploration of varied subject matter, with special emphasis on the human form, and its representation on the 2-D surface with various drawing media. 6 hours per week.

**AR 112 3 credits****Foundation Drawing**

Continuation of AR 110.

Prerequisite: AR 110.

**AR 114 2 credits****2D Workshop I**

An introduction to 2-D principles of composition through projects exploring line, shape, texture, tone, and color. Students work with basic wet and dry line color media. 4 hours per week.

**AR 115 2 credits****2D Workshop II**

Continuation of AR 114.

Prerequisite: AR 114.

**AR 124 2 credits****3D Workshop I**

An introduction to 3-D concepts through projects exploring form, space, structure, texture, color, and environment. Students work with basic sculpture processes of carving, modeling, casting, and assemblage.



**AR 125 2 credits****3D Workshop II**

Continuation of AR 124.

Prerequisite: AR 124.

**A-H 101 3 credits****Ancient and Medieval Art**

This course constitutes a survey of Prehistoric, Egyptian, Mesopotamian, Greek, Roman, Byzantine, Carolingian, Romanesque and Gothic Art, and is designed to familiarize the student with the visual and literary vocabulary of art.

**A-H 102 3 credits****Renaissance to Modern Art**

This course, a continuation of A-H 101, however, need not be taken in sequence, surveys the painting, sculpture and architecture of the Renaissance in Italy and Northern Europe, sixteenth century Mannerism, the Baroque and Rococo periods, and the 19th century to Impressionism.

Note: A-H 101 is a prerequisite for all subsequent courses covering periods before the Renaissance, and A-H 102 is the prerequisite for all subsequent courses concerned with periods since the Renaissance.

## Faculty and Fields of Interest

**Peter London** art education,  
painting

**Dante Vena (chairperson)** art  
education, printmaking, drawing and  
painting

The Art Education program provides a sequence of practical, theoretical and studio-based experiences leading to proficiency in the teaching of art. The scope of the program permits the student to work in public school systems and/or in other private and public agencies and levels. The core of the program is a balance between supervised field work in surrounding communities and university courses in the theory and practice of art and education. All courses, except Senior Seminar and Student Teaching, are open to all students in the University community.

A positive recommendation by the Department Chairperson permits the student to do his/her student teaching (Practicum). Students are advised to see the Chairperson of the Department at the beginning of their senior year to arrange their Practicum. The program leads to a Massachusetts State Teacher Certification in levels of either K-9 or 5-12 as well as to a Bachelor of Fine Arts degree. All students will be informed of state regulations for certification and, therefore, students are required to see one of the Department's faculty for advice and counsel prior to class registration each semester.

## Requirements

Second Year			Semester Credits:	First	Second
AE	200	Development of Visual Symbols		3	
		Modern Art History Elective		3	
ED	205	Human Development and Learning			3
or					
PY	340	Educational Psychology			
or					
ED	310	Understanding the School Child			
AE	420	Art Therapy I***			3
AE	210	Arts in Societies*			3
		Studies in Literature		3	3
AR	221, 222	Figure Drawing		3	3
		CVPA Electives**		5	3
				17	18

Third Year			Semester Credits:	First	Second
AE	300	Methods and Materials: Curriculum Methods in Art Education		3	
AE	310	Concepts and Principles: Curriculum Methods in Art Education			3
		Science Elective		3	3
		CVPA Electives*		9	10
ED or ED	201	Philosophy of Education		3	
	210	History of Education			
				18	16

Fourth Year			Semester Credits:	First	Second
AE	400	Humanistic Approaches: Curriculum Methods in Art Education		3	
AE	410	Art Education Senior Seminar			3
AE	411	Student Teaching (Elementary K-9)****			9
or				3	3
AE	412	Student Teaching (Secondary 5-12)****		9	
		Humanities/Social Science Electives		15	15

**Total credits: 126**

\*Studio concentration may be Painting, Visual Design, or Textiles. With consultation of the Art Education chairperson, a concentration in a studio area can be designed in other areas, e.g. Crafts, Art History, Sculpture, 2-D work, etc. Students majoring in Art Education at the elementary level (K-9) should take a variety of studio courses. Secondary majors (5-12) should include a 4-course sequence within a single media area.

\*\*Painting Majors: take sophomore Painting and Drawing. Visual Design majors: take Color, Methods and Materials and Structural Representation in the sophomore year.

\*\*\*Students interested in Art Therapy can design a concentration in area with consultation of Art Education chairperson. Also available AE 421, Art Therapy II.

\*\*\*\*Students must choose *either* elementary (K-9) or secondary (5-9) teaching.

Four Art History courses are required for graduation.



## Art Education Courses

### **AE 200 3 credits**

#### **Development of Visual Symbols**

Broadly based course open as a university elective and required for Art Education majors. Offers an understanding of sequential development of symbolization from infancy to adulthood in formal and informal settings. The course will enable students to develop a skilled and critical use of techniques for observing and recording children's as well as adult's creative behavior. Required for Art Education majors and open to all University majors.

### **AE 210 3 credits**

#### **Arts in Societies**

Presents the extensive range of roles that artists play in other societies past and present. The course will employ lectures, interviews with artists, papers and slide presentations to convey its content. An elective course for both Art Education majors and all other CVPA and University majors.

### **AE 300 3 credits**

#### **Methods and Materials: Curriculum Methods in Art Education**

Experimental uses of materials and methods of art: didactic implications. The objective of this course is to develop skills in designing curricula for varied age groups which focus on the expressive range of each media. Students will meet for a studio-based session to explore alternative media and techniques. A second session will have studio majors pursuing the ideas to create art objects and art education majors pursuing the ideas to design lessons and units with which these same ideas may be taught to others. In accordance with the Commonwealth State Department of Education, students seeking teaching certification in either K-9 or 5-12 will have readings and field practicum specifically to that age range. Required course for Art Education majors and open to all University majors.

### **AE 310 3 credits**

#### **Concepts and Principles: Curriculum Methods in Art Education**

The focus of this course is the development of curriculum units in the visual arts applicable to educational settings in public schools as well as other selected institutions.

Curricula will be designed based upon traditional concepts and principles of art in a context of human development, physical and social environment and aesthetics. In accordance with the Commonwealth State Department of Education, students seeking teaching certification in either K-9 or 5-12 will have readings and field practicum specifically to that age range. Required for Art Education majors and open to all University majors.

**AE 400 3 credits****Humanistic Approaches: Curriculum Methods in Art Education**

This course is based upon the principles of Humanistic psychology. The ideas and theories of Carl Rogers, Abraham Maslow, Erich Fromm and Rollo May constitute the basic literature studied. This course is clearly directed to educators and other people in human services who desire skills in designing programs for personal growth and the nurture of creative expression. In accordance with the Commonwealth State Department of Education, students seeking teaching certification in either K-9 or 5-12 will have readings and field practicum specifically to that age range. Required for Art Education majors and open to all University majors.

**AE 410 3 credits****Senior Seminar**

Intended to coordinate with AE 411 or AE 412, this seminar provides the opportunity for the student teachers to come together once a week and share their insights and problems. Continued readings in contemporary ideas in art education and demonstrations of newer techniques and media.

**AE 411 3 credits****Student Teaching (Elementary K-9)**

The student is assigned to a school corresponding as much as possible with the student's own interests. Working with and supported by a cooperating teacher and supervisor from the University, the student is afforded the opportunity to conduct art experiences under actual classroom conditions and responsibilities. This practicum is a 15-week, full-time classroom experience at the elementary level K-9.

Prerequisite: Departmental recommendation for AE 410 and AE 411.

**AE 412 9 credits****Student Teaching (5-12)**

This practicum is a 15-week, full-time classroom experience under the direction of a university supervisor and working with and supported by a cooperating teacher. The student teacher is afforded the opportunity to conduct art experiences under actual classroom conditions and responsibilities at the secondary level 5-12.

Prerequisite: Departmental recommendation for AE 410 and AE 412.

**AE 413 3 credits****Children's Art Workshop**

May be taken as a co-requisite. This course provides practical experience with children ages 6-12, on Saturday mornings in the Art Education rooms. The teaching of the workshop will be based on a humanistic approach to art education and may be taken as a co-requisite with AE 400.

**AE 420 3 credits****Art Therapy I**

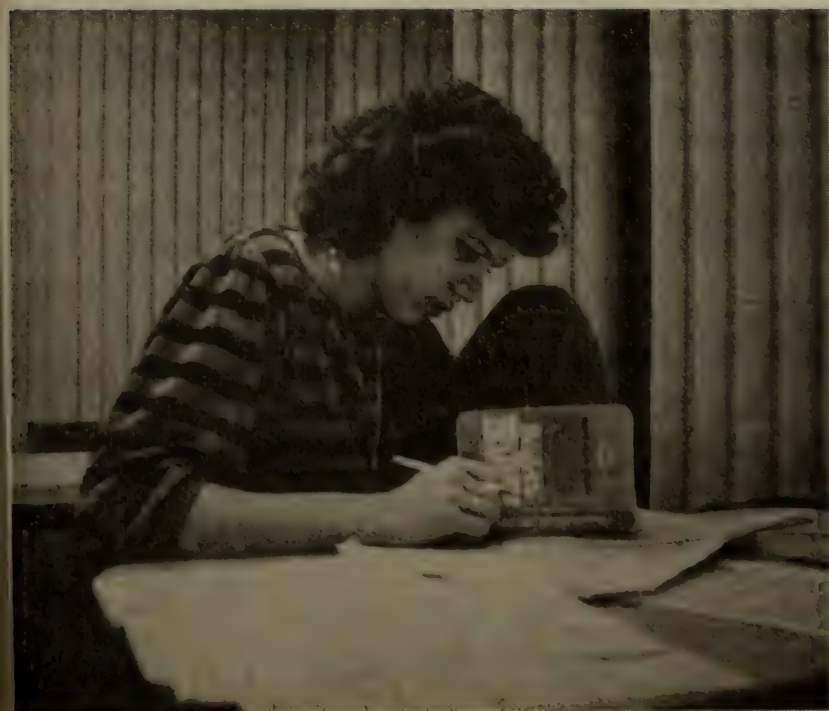
Art is a means of expressing meaning. As such, the making and understanding of art has therapeutic value because it gives us insight into why we think and behave the way we do. This introductory course in art as therapy will examine, through practical experiences, discussion and readings, various ways the visual arts may be used as a therapeutic instrument. We will explore art's potential in physical therapies, diagnosis, affective and cognitive therapies. The course presupposes some prior experience in art and/or psychology courses.

Prerequisite: permission of instructor or courses in art and/or psychology.

**AE 421 3 credits****Art Therapy II**

A continuation of AE 420.





## Faculty and Fields of Interest

**Magall Carrera** ancient Mexico and Peru and traditional art of Africa, America and Oceania

**Pearlee Frelberg (chairperson)** Renaissance, baroque and eighteenth century art

**Thomas Puryear** ancient and medieval art and American architecture

Art History is the study of the visual arts: the products of material culture such as architecture, sculpture, painting, graphics, and the traditional craft arts such as ceramics, weaving and metalsmithing. Art History offers an understanding and appreciation of mankind's diverse visual experience. Such study centers upon the conditions which attend creation and examines the confluence of philosophical, political, sociological and intellectual events which helped to shape not only art, but the whole of civilization.

The Art History field is a humanistic discipline allied to a liberal arts philosophy. Art History majors, therefore, develop writing skills and both verbal and visual analytical abilities. They are provided with an intellectual experience which serves as a life-long critical tool and are well prepared to enter the job market upon graduation.

The Art History major offered by SMU outfits the student with the groundwork which enables him or her to enter the job market with skills which are equivalent to the traditional Liberal Arts graduate, yet have the added advantage of a visual and critical capability not possessed by most. It is the development and sharpening of these skills which the Art History Department strives to inject into the university education of our students.

The major program provides the intellectual training for students who may wish to prepare for advanced work in one of the specialized areas of Art History, but Art History is also a fundamental discipline for students in studio arts as well as for liberal art students, particularly those who are interested in inter-disciplinary relationships.

## Art History Major

First Year		Semester Credits:	First	Second
A-H	101	Ancient and Medieval Art	3	
or		or		
A-H	102	Renaissance to Modern Art		3
ENG	101	Freshman English	3	3
	102	*Social Science Elective	3	3
		History or Philosophy Elective	3	3
		Science Elective	3	3
			15	15
Second Year		Semester Credits:	First	Second
		Art History Elective	3	3
		**Literature Elective	3	3
		Free Elective	3	3
		History or Philosophy Elective	3	
		Art History Elective		3
		Social Science Elective	3	3
			15	15

Note: A program of cognate course work will be filed with the student's advisor for approval in the second semester of the sophomore year. In the case of transfer students, this will be done at the time of admittance to the University.

Some areas normally considered cognate to Art History are:

Studio Art  
 Art Education  
 Music  
 Drama  
 Foreign Languages  
 Literature  
 History  
 Philosophy  
 Sociology-Anthropology

Other subjects may be accepted as related course work in consultation with the student's advisor.

Foreign Language courses are encouraged, particularly for those students who intend to pursue graduate studies.



Third Year	Semester Credits:	First	Second
Art History Elective		3	3
Cognate Course Elective		3	3
Free Elective		3	3
Art History Elective		3	3
Cognate Course Elective		3	3
Free Elective			3
		15	18

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Fourth Year	Semester Credits:	First	Second
Art History Elective		3	3
Cognate Course Elective		3	3
Free Elective		3	3
Cognate Course Elective		3	
Art History Elective			3
Free Elective		3	3
		15	15

**Total credits: 123**

Note: One Art History Seminar is required.

\*Math, Computer and Information Science, Psychology, Sociology-Anthropology, Political Science, Economics

\*\*English Literature or Literature in Translation

## Art History Minor

The Minor in Art History is designed to allow students who have selected another major area of study but who elect to pursue Art History well beyond the introductory level to be so recognized by the department and the university. Because Art History impinges closely upon a variety of other Humanistic disciplines, the complementary nature of the course-work selected by students outside the Art History major is more readily formalized by the Minor in Art History.

Successful completion of the Art History Minor will be so noted on the student's transcript and diploma.

### Admission to the Program

Any student who has earned at least 54 university credits with a cumulative GPA of 2.0 and a 2.5 GPA in his/her major may request admission to the Art History Minor. Permission may be granted by the Chairperson, provided

such request is made in writing, at any time before graduation. Forms are available from the registrar.

### **Requirements**

- a. At least 21 hours in Art History (designated by the prefix AH) at least 12 of which must be above the 100 level.
- b. Three credits must be at the 400 level in Seminar.
- c. Students must maintain a 2.0 GPA in all Art History courses.

## **Art History Courses**

### **AH 101 3 credits**

#### **Ancient and Medieval Art**

This course constitutes a survey of Prehistoric, Egyptian, Mesopotamian, Greek, Roman, Byzantine, Carolingian, Romanesque and Gothic Art, and is designed to familiarize the student with the visual and literary vocabulary of art.

### **AH 102 3 credits**

#### **Renaissance to Modern Art**

This course, a continuation of AH 101, which however, need not be taken in sequence, surveys the painting, sculpture and architecture of the Renaissance in Italy and Northern Europe, 16th century Mannerism, the Baroque and Rococo periods and the 19th century to Impressionism.

Note: AH 102 is a prerequisite for all courses dealing with 19th and 20th century art. Permission of the instructor is suggested for all other courses above the 200 level if the student has not completed either AH 101 or AH 102.

### **AH 303 3 credits**

#### **Greek Art**

This course will trace the development of styles of Greek architecture, sculpture, and painting. Emphasis will be placed on the definition of Classicism and the variety of its expression in the fifth and fourth centuries B.C.

### **AH 306 3 credits**

#### **Roman Art**

This course will attempt to define the Roman qualities of Roman Art, in contrast to its Etruscan, Greek and Hellenistic forebearers. The development of painting, sculpture and architecture will be traced to the time of Emperor Constantine, ca. 325 A.D.

**AH 311 3 credits****Early Christian and Byzantine Art**

The changes in style in architecture, painting and sculpture which separate the art of the Late Roman Empire from the Medieval period will occupy the attention of the first third of this course. The last two-thirds will concern Merovingian, Irish and Carolingian Europe and the parallel development of Byzantine styles up to the year 1000.

**AH 315 3 credits****Romanesque Art**

This course will deal with architecture, painting and sculpture in western Europe from about the year 1000 through the 12th century.

**AH 316 3 credits****Gothic Art**

A course concerning the architecture, sculpture, manuscript painting and stained glass from the beginnings of the Gothic in England, Normandy, and the Isle de France to the internationalization of the style in the 13th and 14th centuries.

**AH 320 3 credits****Art in Europe**

An in-depth on-site study of Art in Europe. Sites will vary.

**AH 321 3 credits****Early Northern Painting**

The development of panel painting in France, Flanders, and Germany from 1400 to the early years of the 16th century will constitute the major interest of the course, but close attention will also be paid to miniature painting, engraving, and the beginnings of printing in this period.

**AH 325 3 credits****Italian Renaissance Art**

A study of the painting, sculpture and architecture in Italy from ca. 1400 to 1520.

**AH 328 3 credits****Venetian Painting**

A survey of painting in Venice from the 15th century through the 18th centuries. Emphasis will be placed on the 16th century.

**AH 329 3 credits****Portraiture**

A survey of European and British portraiture in painting, graphics, and sculpture from the Renaissance through the 19th century.



**AH 330 3 credits****History of Printmaking**

A comprehensive historical survey of printmaking integrated with the studio experience of working in the various printmaking techniques and historical modes. Team taught by Art History and Printmaking faculty.

**AH 336 3 credits****Baroque Art in Italy and France**

A study of painting, sculpture and architecture in Italy and France during the 17th century.

**AH 337 3 credits****Baroque Art in Flanders, Holland and Spain**

A survey of 17th century painting in these countries with an in-depth study of Rubens and Rembrandt.

**AH 338 3 credits****British Art**

A survey of painting, architecture and sculpture in the context of British culture from the 16th century through the 19th century.

**AH 339 3 credits****18th Century European Painting**

A study of the 18th century European painting, principally French and British.

**AH 340 3 credits****Late 18th Century Art in Britain and France**

An in-depth study of British and French painting, sculpture and architecture from 1750 to ca. 1825 in the context of the academy, historicism, classicism, sensibility and the sublime.

**AH 343 3 credits****Development of Modern Painting**

A study is made of 20th century painting, beginning with the contributions of the Post-Impressionist generation in the late 19th century.

**AH 347 3 credits****Dada and Surrealism**

A detailed investigation of these "irrational" movements in Modern Art (1915-1947) in Switzerland, Germany, France, Italy and the U.S.A. The influence of both Dada and Surrealism on much contemporary art will be examined.

**AH 348 3 credits****Realisms**

A study of the concept of Realism in post-Renaissance art.

**AH 349 3 credits****Development of Modern Architecture**

A study of world architecture from the mid-19th century to the present.

**AH 351 3 credits****American Architecture to 1900**

A study of architecture in North America from the first settlers to the early work of Frank Lloyd Wright.

**AH 360 3 credits****Survey of Primitive Art**

An introduction to the arts of Africa, Oceania and the Americas. The course will emphasize method, theory and cross-cultural analysis.

**AH 361 3 credits****Arts and Cultures of Africa**

Survey of the arts, crafts and architecture of Africa. Historical developments, stylistics and aesthetics will be investigated within a sociocultural framework.

**AH 363 3 credits****Pre-Hispanic Art**

An examination of the arts and architecture of Mexico and Central America before the arrival of the Spanish.

**AH 364 3 credits****Art and Culture of Ancient Peru**

A survey of art and architecture of the high cultures of Peru from 5000 B.C. to 1500 A.D.

**AH 365 3 credits****North American Indian Art I**

Survey of the arts, crafts and architecture of the Native American populations in the Southwest, California and the Plains.

**AH 366 3 credits****North American Indian Art II**

This course will investigate the arts and crafts of the Northwest Coast, the Arctic area, the Eastern woodlands, and the Southeast.

**AH 367 3 credits****Oceanic Art**

Detailed Survey of the arts and crafts of the Pacific Islands and Australia. Historical and cultural determinants will be examined.

**AH 390 3, 6 credits**  
**Independent Study**

Intended to allow students to examine in depth a particular aspect of the history of art. Independent study is open to students who have had a minimum of four Art History courses. A proposal of study must be submitted to the instructor prior to enrollment.

**AH 490 3, 6 credits**  
**Independent Study**

Same as above.

**AH 900 3, 6 credits**  
**Contract Learning****Seminars**

Students will deal with bibliography, research methods, and various approaches to Art History. They will pursue extensive research which will be presented to the class. Consent of instructor.

**AH 450 3 credits**

Problems in American Art: New England Architecture

**AH 460 3 credits**

Problems in Primitive Art: Defining Male and Female Roles in Tribal Arts

**AH 461 3 credits**

Problems in Pre-Columbian Art

**AH 462 3 credits**

African Masking Traditions

**AH 481 3 credits**

Literature of Art: Iconography

**AH 482 3 credits**

Literature of Art: Artist's Biographies

**AH 483 3 credits**

Literature of Art: The Grand Tour in Art and Literature



## Faculty and Fields of Interest

**Robert Barry** illustration

**Elaine Fisher** photography

**Howard Glasser** calligraphy

**Harvey Goldman** ceramics

**Georgette Macafee** design

**George Mellor** design

**Carolyn Mills** textile design

**Margot Neugebauer** jewelry

**Harold Pattek** design

**Marjorie Durko Puryear** textile design, weaving

**Howard Windham (chairperson)** design

**Dietmar Winkler** design, typography

## Design Major

This program is based entirely on the understanding of the designer as an artist. While it is directed in many ways toward a professional competence, it refuses to fetter the designer with a rigid set of principles or practices. In general, the assigned projects deal with communications in the widest sense, and the student is expected to be able to solve these projects creatively by using the widest variety of technical and graphic means. A student may choose to major in ceramics, illustration, photography or visual design within the Design Major.

### Major Studios:

Leading to a Bachelor of Fine Arts in Visual Design:

Ceramics

Illustration

Photography

Visual Design

Leading to a Bachelor of Fine Arts in Textile Design:

Handweaving  
Textile Design

### **Major Studios/Major Studio Supports/Studio Electives**

The following is a list of all Design Department courses:

(The broad variety of offerings makes it imperative that students work closely with their advisors to select the courses most appropriate to their individual needs.)

Art of the Book	Photography I-VI
Calligraphy I-IV	Structural Representation
Ceramics I-VI	Studio Photography
Color, Materials and Methods	Textile Design I-VI
Design and Structure I-II *	Textile Styling
Fashion Illustration I-II	Textile Technology I-II *
Handloom Weaving I-VI	Typography I-IV
History of Photography	Visual Design I-VIII
History of Poster	
Illustration I-VI	
Jewelry and Metalwork I-IV	
Movable Image I-IV	

The following may also be used to satisfy Design Department requirements:

All Contract Learning, Directed Studies and Independent Studies (unless otherwise noted)

All Fine Arts Department electives

\* Offered by the Textile Technology Department

## **Textile Design Major**

Education of the textile designer is concerned with the preparation of the student to design woven and printed fabrics plus other industrial applications in the areas of wallpapers, tiles, decorative papers and plastics. The student in the Textile Design major program is confronted with creative, technical and production programs related to the field. A student can major in either woven or printed fabric design.

First Year	Semester Credits:	First	Second
Foundation Program		16	16

Second Year	Semester Credits:	First	Second
FA 221, 222 Humanities/Social Science Elective	3		
English Literature	3		3
Figure Drawing I	3		3
Major Studio	3		3
Modern Art History			3
*Major Studio Support	3		3
Major Studio Support	3		3
	18		18

\*DE 281-282 or DE 273-274 required for classes of 1985, 1986

Third Year	Semester Credits:	First	Second
Science Electives	3		3
Major Studio	3		3
Major Studio Support	3		3
Major Studio Support	3		3
*Free Elective			3
Studio Elective	3		3
	15		15

Fourth Year	Semester Credits:	First	Second
Humanities/Social Science Electives			
Art History Elective	3		
Free Elective			3
** Major Studio	6		6
Studio Elective	3		3
	15		15

\*\*Majors in Visual Design have two 3-credit courses per semester instead of one 6-credit course.

Total credits required for degree: 126



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## Textile Design Courses

**DE 271 3 credits****Textile Design I**

The second year textile design major is introduced to printed textile design. The student is given practice in rendering techniques and printing methods. The course also covers nature study as applied to textile design.

Prerequisite: Foundation Courses.

**DE 272 3 credits****Textile Design II**

A continuation of DE 271.

Six studio hours.

Prerequisite: Foundation courses.

**DE 371 3 credits****Textile Design III**

Advanced problems in designing patterns on paper for fashion and decorative fabrics is covered. Nature drawing is included, exploring color schemes and surface patterns.

Eight studio hours.

Prerequisite: DE 272.

**DE 372 3 credits****Textile Design IV**

Advanced problems in designing using the silk screen mediums as solution methods. The course includes nature drawing.

Eight studio hours.

Prerequisite: DE 272.

**DE 471 6 credits****Textile Design V**

A study is made of the more complex problems in designing fabrics for either wovens or prints with emphasis on originality in the chosen area. Twelve studio hours.

Prerequisite: DE 371 and 372 or DE 373 and 374.

**DE 472 6 credits****Textile Design VI**

A continuation of DE 471.

Twelve studio hours.

Prerequisite: DE 471.

**DE 273 3 credits****Handloom Weaving I**

This course gives the student the opportunity to learn the basic principles of weaving on a handloom or experiment in the offloom techniques. He/she is encouraged to experiment with colors, textures and basic weaves. More advanced weaves are explored as the student gains in skills and techniques.

Six studio hours.

**DE 274 3 credits****Handloom Weaving II**

This is an advanced course giving the student opportunity to develop original designs on the loom and off the loom. Further study is involved in advanced weaves, rug and tapestry techniques, soft sculptures and fiber wovens.

Six studio hours.

Prerequisite: DE 273 and DE 274.

**DE 374 3 credits****Handloom Weaving IV**

A continuation of DE 373. Emphasis is placed on experimentation.

Six studio hours.

Prerequisite: DE 373.

**DE 473 6 credits****Handloom Weaving V**

Investigation of advanced 8-12 harness handloom weaving techniques and aesthetics used in designing to meet the quality mass-market industry, as well as the one-of-a-kind handwoven object. Individual research into various historical and technical aspects of weaving, color and design.

2 studio hours.

Prerequisite: DE 374.

**DE 474 6 credits****Handloom Weaving VI**

An in-depth continuation of Handloom Weaving V.

12 studio hours.

Prerequisite: DE 473.

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## Design Courses

**DE 211 3 credits****Color, Materials and Methods**

This is a second-year course for students in visual design, textile design, and art education. The use of color in many different ways and with a great variety of materials and surfaces is the basis of the program. Methods, which will be taught concurrently, is concerned with achieving the drawn image by means of varying techniques and media.

**DE 213 3 credits****Calligraphy I**

The fundamentals of the alphabet as a language system and its graphic implications. Projects emphasize the visual relationships of formal and informal letter forms as affected by natural rhythms, line shape, texture and the integration of images and decoration.

**DE 214 3 credits****Calligraphy II**

A continuation of DE 213, Calligraphy I: an in-depth study of the five basic alphabet styles through design problems.

**DE 215 3 credits****Structural Representation**

This course is meant to provide the student with experience in handling volume and spatial arrangements. It deals with projection drawing of all kinds and touches upon three-dimensional model making.

**DE 251 3 credits****Visual Design I**

The student, in taking this course, has elected to explore the world of the designer. He/she is introduced to all phases of communications design, touching on traditional as well as contemporary methods.

**DE 252 3 credits****Visual Design II**

A continuation of DE 251.

**DE 351 3 credits****Visual Design III**

The student is introduced to the concepts and skills surrounding the creation of graphic imagery. emphasis is placed on the design process and the skills necessary to develop a final presentation.

Prerequisites: DE 251, 252.



**DE 352 3 credits****Visual Design IV**

This course focuses on the interrelationships of word and image and the importance of that interrelationship in visual communication.

**DE 451 3 credits****Visual Design V**

This course prepares the student for professional work in the Visual Design field. Assignments in a variety of directions: book design, packaging, public relations, environmental elements, communications problems and systems design.

Prerequisites: DE 351, 352.

**DE 452 3 credits****Visual Design VI**

Through a series of related but separate projects, this course is taught in tandem with Visual Design V.

Prerequisites: DE 351, 352.

**DE 461 3 credits****Visual Design VII**

A continuation of DE 451.

**DE 462 3 credits****Visual Design VIII**

A continuation of DE 452, taught in tandem with Visual Design VII.

**DE 281 3 credits****Photography I**

A basic survey is made of the theory of black and white photography. Dark-room experience includes the development of film, contact and enlargement printing.

One lecture hour, three laboratory hours.

**DE 282 3 credits****Photography II**

A continuation of DE 281, with emphasis on development of printing skills, professional presentation, and exploration of contemporary means of photographic expression.

One lecture hour, three laboratory hours.

Prerequisite: DE 281.

**DE 332 3 credits****History of Photography**

This course surveys, through lecture and audio-visual presentation, the development of technical and aesthetic concerns in photography from its beginnings to the present. Special attention will be paid to the impact of historic events on the aesthetic considerations of the day.

**DE 381 3 credits****Photography II**

The development of a personal approach to photography as well as application of techniques used in applied photography are integrated in a series of projects involving multiple image printing, use of high contrast film, and large format camera work. The zone system is studied in depth.

One lecture hour, three laboratory hours.

Prerequisite: DE 282.

**DE 382 3 credits****Photography IV**

A continuation of DE 381 with further exploration of experimental techniques and their application to applied and personal photographic statements. A brief survey is made of the history of photography.

Two lecture hours, three laboratory hours.

Prerequisite: DE 381.

**DE 481 6 credits****Photography V**

An intensive study is made of advanced techniques used in contemporary photography. Emphasis is placed on the development of a personal photographic approach coupled with professional esthetic standards.

Three lecture hours, six laboratory hours.

Prerequisite: DE 382.

**DE 482 6 credits****Photography VI**

A continuation of DE 481 with an emphasis placed on the preparation of a professional photographic portfolio.

Three lecture hours, six laboratory hours.

Prerequisite: DE 481.

**DE 385 3 credits****Studio Photography**

A studio elective course open to students who have had the courses Photography I, II, and III.

The course deals with the professional methods of photographing two and three dimensional objects in black and white, and color. Lighting techniques utilizing daylight, quartz lights and electronic flash are studied. Film formats from 35mm to 4x5 are used to produce prints and transparencies. Effective use of simple studio props are studied.

Laboratory three hours; studio demonstrations three hours; unsupervised studio, field works, print and slide presentation three hours.

**DE 211 3 credits****Illustration I**

An introductory course in illustration focusing on drawing and composition which relates to the special needs of the illustrator; an exploration of illustration concepts as well as the tools, techniques and surfaces which are of primary concern to the illustrator.

**DE 222 3 credits****Illustration II**

A continuation of DE 221 including analytical and on-location drawing, a review of the procedures used in gathering reference material for illustration, and a slide survey of the History of Illustration.

**DE 321 3 credits****Illustration III**

This course is structured to acquaint students with the wide range of the illustration field; specialized areas are explored through projects of various focus.

**DE 322 3 credits****Illustration IV**

A continuation of DE 321 including a survey of outstanding contemporary illustration.

**DE 421 6 credits****Illustration V**

This advanced level course is aimed at developing the student's individual strengths and interests. Efforts are made to engage students in projects which will result in their illustrations being reproduced.



**DE 422 6 credits****Illustration VI**

A continuation of DE 421. Through individual conferences between student and instructor, an emphasis is placed on building portfolios which provide a clear and strong indication of the student's capabilities.

**DE 323 3 credits****Fashion Illustration I**

Learning to draw the fashion figure is the major thrust of this course. Includes intensive drawing from clothed models, fashion photos and prototypes. Rendering skills to be developed by working from a wide variety of clothing and accessories as well as through experimentation with painting and illustrational techniques. Includes female, male and children's fashion illustration. Attention will also be given to the composition of the total fashion ad, with layout assignments dealing with the relationship of figure to type.

Prerequisites: AR 110, AR 112.

**DE 253 3 credits****Typography I**

This course is meant to give the design student a wide understanding of typography in relation to communications. Exercises in basic typography are combined with field trips to plants and businesses involved in the graphic arts. As the course progresses there is increasing emphasis on the creative aspects of typography.

**DE 254 3 credits****Typography II**

A continuation of DE 253.

**DE 353 3 credits****Typography III**

The student explores projects in typography on an advanced professional level. He/she will be prepared to function in publishing, advertising and typographic design.

**DE 354 3 credits****Typography IV**

A continuation of DE 353.

**DE 383 3 credits****Movable Image: Slide and Sound**

An introduction to the planning, preparing and producing of slide sequences for multi-image and multi-projector shows. The course will cover the specific technology, writing, sequencing and editing. It will deal with shows that inform, educate and entertain.

**DE 483 3 credits****Movable Image: Animation**

An introduction to media of running graphic images. The subject matter in the course will include discussions of time, space and light within the framework of graphic images. The student will be introduced to the pragmatics of storyboarding, preparation of flatwork and producing a small animated film on the animation stand.

**DE 484 3 credits****Movable Image: Film**

This course is a continuation of DE 383 and DE 483 and will prepare students for the filming of a short subject in 16mm color or black and white. The experimental character of this medium will be stressed.

**DE 384 3 credits****Movable Image: Video**

This course finishes the 4 semester sequence. The student will be trained to use and understand the electronic technology and combine slide and sound, animation, film, plus live video segments into a short production.

**DE 317 3 credits****The Art of the Book**

Experimental approaches to bookmaking is emphasized. Exploring conceptual attitudes will be combined with developing skills in bookbinding, papermaking, assorted printed processes and other related techniques. Examples of contemporary books will be shared.

Prerequisite: Junior standing, any art major.

**DE 331 3 credits****History of Poster**

A slide/lecture course covering the history of the modern poster from the mid-1800's to the present. The poster format is used, in effect, to trace the history of visual design during that period. Aside from viewing the work, attention is given to the artists, their technical and esthetic contributions and to the larger social, political and philosophical developments that are the content of posters.

**DE 216 3 credits****Dimensional Design**

For Art, Engineering and other students wishing to pursue projects in Public Art Proposals, architecture/sculpture/environmental. Multidisciplinary concept of design, technical drawing, site study, perspective renderings, structural and fabrication techniques are explored.

Prerequisite: DE 215 or permission of instructor.

**DE 291 3 credits****Ceramics I**

An introduction to ceramic stoneware techniques and processes, including assigned reading, hand building, wheel throwing, glazing and firing.

Prerequisite: Sophomore standing or permission of department.

**DE 292 3 credits****Ceramics II**

A continuation of DE 291.

**DE 391 3 credits****Ceramics III**

A more advanced workshop course including refinement of technical and formal approach, glaze formulation, experimentation with clay bodies, firing techniques, sculptural processes, etc.

**DE 392 3 credits****Ceramics IV**

A continuation of DE 391.

**DE 491 6 credits****Ceramics V**

An advanced course in ceramics stressing individual concentration with processes of construction, throwing, glazing and firing.

**DE 492 6 credits****Ceramics VI**

A continuation of DE 491.

**DE 293 3 credits****Jewelry and Metalwork I**

This course is designed to give the student a working knowledge of the tools and techniques involved in the making and designing of jewelry. Basic skills in cutting, soldering and working with precious metals eventually lead to incorporating stones and gems in original pieces.



**DE 294 3 credits****Jewelry and Metalwork II**

A continuation of DE 293 with greater emphasis on the design and execution of original work. Technical skills are developed further as the student works in increasingly complex techniques.

**DE 393 3 credits****Jewelry and Metalwork III**

Casting and enameling are introduced as further exploration is carried out in the methods involved in the designing and fabrication of objects in metal. The student is encouraged to investigate original ideas of expression while working with the various materials available to the metal craftsman.

**DE 394 3 credits****Jewelry and Metalwork IV**

A continuation of DE 393

**DE 293, 294, 393, 394**

A four-semester sequence which can be started in any semester—fall or spring— with each semester being prerequisite for the next. No prerequisite for Jewelry and Metalwork I.

**DE 395 3 credits****Enameling**

A course for the advanced jewelry student covering the basic techniques of enameling on copper and silver. Included are color experimentation as well as cloisonne, plique-a-jour, basse-taille and related enameling processes.

Prerequisite: DE 293, 294.

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## Faculty and Fields of Interest

Richard Creighton	sculptor	Anthony Miraglia (chairperson)	
Herbert P. Cummings	painter	painter	
Willoughby Elliott	printmaker	Constantine Arvanites	painter
Kurt Wisneski	printmaker		
Laurie Kaplowitz	painter		
Frank McCoy	painter		

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## Fine Arts Major

The Fine Arts area has three majors: painting, printmaking, and sculpture. In all of these majors there is a solid foundation in drawing which continues for four years. In each major the students also receive a solid foundation in traditional materials, methods and principles, relative to the Fine Arts in general and their area in particular. The students are encouraged to pursue their own direction and to choose many different modes of personal expression.

The ultimate objective is to develop the student's respect for the learning process and the creative act as a means of preparing him or her for an active role in the cultural stream of life.

In the Fine Arts program, we do not teach artists; rather we are involved in the process of teaching students to become artists. This includes teaching the elements and the principles of the craft so that the student will be firmly grounded in the basic concepts. Once the student is versed in these basic concepts, he/she has the ability to move in many more directions with confidence and authority.

The above is not to imply that craftsmanship is synonymous with art. Craft and basic concepts are employed to produce work that transcends mere craft. The student is not expected to follow blindly customs of the past or trends of the present. However, the student must realize that structure is one of the aims of his or her education in art.

The basic fundamentals should be considered in the making of a work of art and should be a part of the making of an artist. These fundamentals should not only consist of learning the elements of visual order but also the promotion of the ability to be wondering and inquisitive.

## Requirements

Second Year			Semester Credits:	First	Second
		Major Studio		3	3
FA	221, 222	Figure Drawing I		3	3
		Studio Elective		3	3
A-H	345	Development of Modern Painting		3	
or					
A-H	346	Development of Modern Sculpture		3	
		Humanities/Social Science			3
		Studies in Literature		3	3
				15	15

Third Year			Semester Credits:	First	Second
		Major Studio		6	6
FA	311, 312	Composition		3	3
FA	321, 322	Figure Drawing II		3	3
		Studio Elective		3	3
		Science Elective		3	3
				18	18

Fourth Year			Semester Credits:	First	Second
		Major Studio		6	6
FA	421, 422	Drawing III		3	3
		Studio Elective		3	3
		Humanities/Social Science		3	3
		Art History Elective (either semester)		3	
				18	15

Total credits: 131



Note: Sculpture required one semester for Painting majors. Painting required one semester for Sculpture majors.

Printmaking majors are required to take two semesters of painting, two semesters of figure drawing, and at least one semester of printmaking chosen from the 200 series (FA 281, 283, 285) during the sophomore year. These three AR 200 courses are necessary to complete Printmaking I.

A Printmaking major must complete Printmaking I before taking Printmaking II.

Printmaking majors are required to take two semesters of painting and complete all 200 print courses before taking 300 print courses.

If a Printmaking major takes only one 200 printmaking course in the sophomore year, he/she must take the two remaining courses in the 200 series concurrently in the first semester of the junior year.

A minimum of one History of Art elective (3 cr.) must be taken following the required A-H 101, 102 and A-H 345 or 346

Printmaking majors are required to take A-H 345, Development of Modern Painting. All sculpture majors are required to take A-H 346, Development of Modern Sculpture.

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## **Fine Arts Courses**

### **FA 221 3 credits**

#### **Figure Drawing I**

The Human figure, its form, mass, and proportions, is studied in relation to its environment. Live models are used. Six studio hours.

Prerequisite: AR 122.

### **FA 222 3 credits**

#### **Figure Drawing I**

A continuation of FA 221.

**FA 241 3 credits****Painting I**

This is an introductory course in beginning painting. The technique of oil is predominant, however, other plastic mediums are also considered. Concepts of design, composition, and color are studied. The development of the intuitive and creative ability of the individual is given careful attention.

Eight studio hours.

Prerequisite: AR 112.

**FA 242 3 credits****Printmaking - Silkscreen I**

A studio course in silkscreen, in which various stencil-making processes will be introduced. Color and shape relationships, as well as artistic values and techniques will be stressed.

Prerequisite: Painting I and Figure Drawing I must be taken in conjunction with Printmaking I.

**FA 283 3 credits****Printmaking I**

A studio course in the techniques of intaglio. Artistic values as well as techniques will be stressed.

Prerequisite: Painting I and Figure Drawing I must be taken in conjunction with Printmaking I.

**FA 285 3 credits****Printmaking I**

An introduction to the printmaking process of lithography on stone, and aluminum plate. The development of artistic values as well as technical facilities will be stressed.

Prerequisite: Painting I and Figure Drawing I must be taken in conjunction with Printmaking I.

**FA 291 3 credits****Sculpture I**

A structured introduction to basic techniques including clay modeling from the figure, used of plaster, wood, welding, mold making, and casting. The course is meant to enable the beginning student to explore medium and gain fundamental skills with them. Occasional slide talks. Content, form and technique are discussed in relation to the work.

Prerequisite: Sophomore art major standing or permission of department.

**FA 292 3 credits**

**Sculpture I**

A continuation of FA 291.

**FA 311 3 credits**

**Composition**

An advanced consideration of design principles is applied to weekly assigned drawing problems. Resourcefulness in technical treatment and imaginative approach are encouraged.

Six studio hours.

Prerequisite: FA 242 and FA 222.

**FA 312 3 credits**

**Composition**

A continuation of FA 311.

**FA 321 3 credits**

**Figure Drawing II**

This course is a continuation of Figure Drawing I with more attention given to composition and individual approaches. New techniques and media are introduced. Six studio hours.

Prerequisite: FA 222.

**FA 322 3 credits**

**Figure Drawing II**

A continuation of FA 321.

**FA 341 6 credits**

**Painting II**

This is an intermediate course, with painting problems related to the individual and to improve the student's ability to compose in a professional manner. The student works from the figure, nature, and still life with an emphasis toward his/her personal development.

Twelve studio hours.

Prerequisite: FA 242 and FA 222.

**FA 342 6 credits**

**Painting II**

A continuation of FA 341.

**FA 381 and other 300 Print Courses 3 or 6 credits**

**Printmaking II**

A studio course aimed at developing a high degree of technical articulation with printmaking techniques of the students' choice as they relate to the image making process.

Prerequisite: FA 222, 281, 283, 285.



**FA 391 3 or 6 credits****Sculpture I:**

A course designed for those having a deeper interest in sculpture. Intended to deepen and refine skills in one or more media. The beginning of the student's development of a sculptural idea in an open workshop. Students who are majoring in sculpture can register for six (6) credits. The work required will be adjusted accordingly.

Prerequisite: FA 292.

**FA 392 3 or 6 credits****Sculpture II**

A continuation of FA 391.

**FA 421 3 credits****Drawing III**

A drawing course intended to help the student correlate previous drawing experiences. More emphasis is placed on individual expression and interpretation.

Six studio hours.

Prerequisite: FA 322.

**FA 422 3 credits****Drawing III**

A continuation of FA 421.

**FA 441 6 credits****Painting III**

This course covers advanced problems in painting with emphasis on personal development. There are individual criticisms and seminar discussions of contemporary problems in painting. Twelve studio hours.

Prerequisite: FA 342.

**FA 422 6 credits****Painting III**

A continuation of FA 441 with the student gradually working more independently. Criticisms become even more on an individual basis.

Prerequisite: FA 441.

**FA 481 and other 400 Print Courses 3 or 6 credits****Printmaking III**

An advanced studio course in printmaking aimed at the further development of a professional attitude toward the printmaking techniques as a means of artistic statement.

Prerequisite: A minimum of 15 credits in printmaking.

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**FA 491 3 or 6 credits**

**Sculpture III**

A studio course stressing individual concentration with sculptural media and processes for the advanced student. Students who are majoring in sculpture can register for six (6) credits. The work required will be adjusted accordingly.

Prerequisite: FA 392.

**FA 492 3 or 6 credits**

**Sculpture III**

A continuation of FA 491. Students who are majoring in sculpture can register for six (6) credits. The work required will be adjusted accordingly.

## Faculty and Fields of Interest

**Robert Adams** chorus, composition, electronic music, music theory

**Edward Fitzpatrick** piano, composition

**Eleanor Carlson (chairperson)**  
piano, music history

**Bobby Greene** jazz studies

**Jacqueline Bazinet Cobert** voice, opera

**Vincent Luti** theory

**Josef Cobert** flute, music history

**Barbara H. Noel** musicology

**Gene Crisafulli** trumpet, stage band, concert band, music theory

## Music Major

The Bachelor of Music degree allows rigorous study in either applied music (instrumental or vocal) or theory/composition. Both tracks include a core curriculum of music theory, history, musicianship, and functional piano as well as the opportunity for more specialized studies. All candidates must pass an entrance audition and take an advisory exam to determine their potential and background in music. Candidates are expected to have some facility on their instrument and, especially in the case of theory/composition candidates, to have some preparation in fundamental concepts of music theory.

Graduates of the major program have a variety of avenues open to them, from teaching and performing to advanced study and careers in related fields. The department is also strongly interested in developing interdisciplinary programs for those whose needs are best met by a liberal arts background with a concentration in music, including education.



## Music Minor

A special music minor program is offered to SMU students. The program is designed for talented students who desire an opportunity to develop their musical abilities. It is open to all SMU students who meet the music entrance requirements. This program will enable students who are majoring in other areas to expand their music skills in a systematic, well-rounded manner.

Students may choose an area of concentration such as applied studies (piano, voice, flute, etc.) theory/composition, or jazz studies. Each student's program is then built around this area of concentration. In addition, certain basic courses are required of all students. Students demonstrating a special ability or interest may, with approval of the full music faculty, develop individualized programs through independent study. Graduating seniors who have successfully completed the special music minor program will have this fact stated on their diplomas.

Students in the Applied-Studies track will have their progress monitored by the department in semester-end juries. For promotion, students must meet minimum criteria for each level (information on these criteria and other departmental regulations is available from the department office). Theory/-Composition students may fulfill the applied study requirement during their junior and senior years. For promotion to upper division standing in Theory/-Composition, a sophomore exam must be passed. The exam will consist of a review of class work submitted by the student and the creation of a short musical composition on a given set of criteria.

Applied lessons are open to all qualified SMU students subject to the following priority:

1. Continuing Music Majors and Minors in good standing or on probation and new Music Majors and Minors (matriculating students).
2. Continuing non-majors and non-minors in good standing and Music Majors and Minors on a second instrument.
3. Non-majors and non-minors who wish to begin studies (subject to a qualifying audition).

Good standing is defined in the following manner:

1. Majors: Lower division student must be making steady progress in the Theory sequence, Music Skills, and Class Piano, subject to advanced placement; upper division students should be completing two academic music courses per semester or finishing the core curriculum in a timely manner. The student may petition the department for waiver of these minimum standards.

2. Minors: Declaration as a music minor must be filed through the registrar. In addition, steady progress must be made to complete the minor (at least three credits of non-performing coursework per semester in addition to applied-studies credit). The student may petition the department for waiver of these minimum standards.

Once a Music Major is accepted into an applied-studies track, the student is assured of continuation if a minimum of 2.0 is obtained each semester in the applied lesson and the student is otherwise in good standing. Receiving less than a C grade but still passing will result in the student being placed on probationary status for one semester, at the end of which time the student's progress will be reviewed by departmental jury and the applied instructor. Should the student's progress be less than expected for his/her length of study, applied lessons will be terminated. It will be incumbent on the student either to make up the work, find another applied track, petition successfully for entry to the theory/composition track, or find another major program at SMU. A student who gets a failing grade may readmission for applied lessons on a space-available basis.

Non-majors should be aware that continuation is on a space-available basis, though, where at all possible, the department will allow non-majors to continue their studies without interruption.

The Music Department requires a minimum acceptable grade of C (2.0 on the 4-point system) for all music courses that will be included in fulfillment of music major and minor requirements.

### **Bachelor of Music Degree Requirements**

Applied Studies: 124 credit hours

Theory/Composition: 122 credits hours

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### **Distribution Requirements**

Freshman English: 6 credit hours (ENG 101, 102)

All first-year students are required to take Freshman English, a two-semester course in the basic skills of communication, written and spoken.

Foreign language: 6 credit hours

Credits may be taken in Italian, French, or German. The requirement is to be fulfilled by a year in one language.

Natural Science: 3 credit hours

Physics of Music is recommended. Courses may be taken in the Biology, Chemistry and Physics Department or other departments with approval of Music Department Chairperson.

Social Science: 3 credit hours

Courses may be taken in Economics, Political Science, Psychology, or Sociology.

Humanities: 9 credit hours

3 credits in History or Art History and 6 additional credits in those fields or Literature (either English or a Foreign language) or Philosophy. Applied students in voice must include in this latter category one course in Linguistics.



## Music Major Core Curriculum

First Year		Semester Credits:	First	Second
	Applied Studies*		3	3
MUS 111	Harmony I		3	
MUS 113	Counterpoint I			3
MUS 109, 110	Music Skills I, II		2	2
MUS 165, 166	Class Piano I, II		1	1
	Ensemble		1	1
ENG 101, 102	Freshman English		3	3
	Distribution**		3	3
			16	16

\*Theory/Composition students may substitute 6 credit hours of distribution with Music Department approval.

\*\*History or Art History recommended as preparation for Survey of Western Music (MUS 203, 204).

Second Year		Semester Credits:	First	Second
	Applied Studies*		3	3
MUS 211	Harmony II		3	
MUS 212	Twentieth Century Theory			3
MUS 209, 210	Music Skills III, IV		2	2
MUS 203, 204	Survey of Western Music		3	3
MUS 265, 266	Class Piano III, IV		1	1
	Ensemble		1	1
	Distribution		3	3
			16	16

\*Theory/Composition students may substitute 6 credit hours of Electronic Studio Techniques with Music Department approval.

## Third and Fourth Years - Applied Track

Applied students must perform in a student recital during the sophomore year, give a joint recital during the junior year, and perform a full recital during the senior year. All students performing junior and senior recitals will be required to play a preliminary recital permission audition before they may schedule their recitals. The audition will be played for the applied faculty and must be scheduled between October 1 and April 15. All recitals must be scheduled while classes are in session (before Final exam period).

	Credits
Applied Studies	16
Music Electives*	14
Ensemble (1 ensemble each semester)	4
Distribution	9
Free Electives	9
Music History (period courses)	6
Senior Recital	2

\* Music Electives may be chosen from non-applied 300- and 400- level courses, and MUS 242.

Voice students should include MUS 245 and 246 (Applied Vocal Repertoire).

### Third and Fourth Years - Theory/Composition Track

Theory/Composition students must pass a Sophomore Exam for promotion to upper division standing. The exam will consist of a review of class work submitted by the student and the creation of a musical composition on a given set of criteria. A minimum of 2.0 grade average in music major courses will also be expected for promotion. Successful candidates will be able to complete the applied studies requirement if it has been deferred during the first two years of study.

	Credits
MUS 333 334 Theory/Composition	6
MUS 313 Orchestration	3
Ensemble (one each semester)	4
MUS 223 224 Electronic Studio Techniques	6*
MUS 411 Schenkerian Analysis	3
or	
MUS 412 Form and Analysis Seminar	3
Music Elective	12
Distribution	9*
Free Electives	9
Music History Period Courses	6

\*If the Applied Studies requirement (12 credit hours) was deferred in the first two years, then the appropriate courses should be deleted and replaced with Applied Studies.

## Music Minor Program of Study

### Applied Emphasis

For students whose area of concentration is piano, voice, or orchestral instruments.

Course	Credits Per Semester	Required Semesters	Total Credits
Applied Voice/Instrument*	3	4	12
Harmony I and Counterpoint I	3	2	6
Music Skills	2	2	4
Survey of Western Music	3	2	6
Class Piano**	1	2	2

**Total credits: 30**

\*Students may continue to take applied studies all four years if they wish to do so.

\*\*Not required of piano students or other students able to pass the piano proficiency exam. A piano proficiency exam must be passed to receive the music minor certificate. Additional levels of class piano may be taken for academic credit, but only two may be applied to the music minor requirement.

### Recital Requirement

Students with applied emphasis are required to participate in at least one student recital in order to receive the music minor certificate. This recital must be scheduled with the approval of the applied instructor.

### Ensemble Requirement

In order to receive the music minor certificate, students with applied emphasis are required to participate in an ensemble on their applied instrument or voice during at least one semester. It is recommended that they participate in other ensembles as often as possible.

### Non-applied Emphasis

For students whose area of concentration is jazz studies or theory/composition.

Course	Credits Per Semester	Required Semesters	Total Credits
Applied Voice/Instrument*	3	2	6
Harmony I and Counterpoint I	3	2	6
Music Skills	2	2	4
Survey of Western Music	3	2	6
Class Piano**	1	2	2
Music Concentration***			6
Jazz Studies			
Theory/Composition			

**Total credits: 30**



\*Students may continue to take applied studies all four years if they wish to do so.

\*\*Not required of piano students or other students able to pass the piano proficiency exam. A piano proficiency exam must be passed to receive the music minor certificate. Additional levels of class piano may be taken for academic credit, but only two may be applied to the music minor requirement.

\*\*\*Jazz concentration must include Jazz Theory and Improvisation for 3 credits and Afro-American Music for 3 credits.

\*\*\*Theory/Composition concentration must include Harmony II and Twentieth Century Theory for 6 credits.

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## Music Courses

### Courses Primarily for Non-majors

#### **MUS 101, 102 3 credits**

##### **Introduction to Music**

This course is designed to present a basic music vocabulary and develop intelligent discrimination in the listener through study and analysis of outstanding works from Gregorian Chant to the present. Emphasis is also placed on the relationship of the historical development of music to parallel movements in art, drama, philosophical thought, etc.

#### **MUS 107 3 credits**

##### **Fundamentals of Theory**

A course designed for beginners with no theory background. The study of the elements of music, systems of sounds, pitch, meter, rhythm, note values, dynamics, manuscript, etc. Identification, nomenclature, and performance will be carried out through a programmed text, lecture and practical application through singing and playing. This is a foundation course in theory and composition.

**MUS 108 3 credits****Materials of Music**

This course takes a comprehensive view of music in that it explores concepts of style and structure, and develops aural perception as well as the ability to write music. It is intended for those who already have some performance ability in music and are able to read music and although it is not part of the Major or Minor program in Music, it is the preferred vehicle for those preparing themselves for further work in music.

Prerequisite: Ability to play an instrument and read music.

**MUS 115 3 credits \*****Jazz Theory and Improvisation**

Two hours of class theory and a one to two hour practicum in jazz improvisation techniques. A course covering the study of jazz scales, chord structures, nomenclature and progression patterns. There will also be some elementary arranging. The theoretical studies will be put into practice in weekly performance sessions.

Prerequisite: MUS 111, MUS 113, and instrumental proficiency.

**MUS 229 3 credits \*****Survey of the Symphony**

The development of the symphony as traced from the eighteenth century to the present day.

**MUS 231 3 credits \*****Beethoven**

Knowledge of the genius through his composition.

**MUS 232 3 credits \*****Johann Sebastian Bach**

A study of the great Baroque master through historical and musical examination.

**MUS 235 3 credits****Survey of American Music**

A genesis and growth of American music from its inception to the present, including popular idioms.

**MUS 236 3 credits****Masterpieces of Music**

A more detailed listening to some of the great musical ideas of Western culture will be achieved through recorded and live performances. The examples will attempt to include one type of each major form, such as: opera, symphony, film music, overture, piano sonata, concerto and others.

**MUS 237 3 credits****The Art of Rock and Roll Music**

A historical development of American Rock and Roll Music including its social and intellectual roots, and its role in defining and perpetuating American values. No prerequisite; open to all students.

**MUS 238 3 credits****Music and the Related Arts: Paris (1890-1930)**

This course will emphasize the music of the period, but will also attempt to investigate its relationship to the other arts. Debussy, for example, was labeled an impressionist because of the circumstances linking him to the impressionist painters. Debussy, however, was also influenced by *art nouveau* and by the symbolist poets. Other styles to be explored will include Satie's connections with dadaism and surrealism and Stravinsky's close alliance with ballet. Although listening to music will be of primary importance, art slides, poetry readings, and films of ballets will be used as much as possible. Guest lecturers will also be called upon as the occasion arises.

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**Courses Primarily for Majors and Minors**
**History****MUS 127 3 credits •****Survey of Choral Literature**

A specialized appreciation course that examines music for group singing—Gregorian chant, medieval mass and motet, Renaissance madrigals, motets, Baroque oratorio, Bach cantatas, opera choruses of Monteverdi, Purcell, Gluck, Mozart, Verdi, twentieth century works with unusual harmonic effects, etc. Lectures, listening, study and, where possible, live demonstrations will constitute the work.

**MUS 203, 204 3 credits****Survey of Western Music I, II**

A course designed to give a broad view of music from the middle ages to the present. Listening and analysis will be stressed, but historical background will also be discussed.

Prerequisite: MUS 107 or equivalent and MUS 111, 113 (may be taken concurrently)

**MUS 242 3 credits****History of Jazz Music**

A general survey of Afro-American music in the U.S. traced from its origins to the present. The course is intended to introduce the student to the vast and rich expanses of black musical culture, both from a musical and socio-



historical standpoint. The emphasis of the course will be on jazz, its history and an analysis of the contributions of its major innovative figures.

Prerequisite: Music 107 or equivalent.

**MUS 337 3 credits\*\***

**Music of the Twentieth Century**

A study is made in the trends in twentieth century music, embracing analysis of representative works from the period and their relationships to the existing culture.

Prerequisite: MUS 203, 204

**MUS 339 3 credits\*\***

**Music of the Romantic Period**

A survey of the masterpieces of Chopin, Tchaikowsky and other nineteenth century composers.

Prerequisite: MUS 203, 204

**MUS 341 3 credits**

**Music of the Classical Period**

A study of the major works of Haydn, Mozart and Beethoven.

Prerequisite: MUS 203, 204

**MUS 343 3 credits\*\***

**Music of the Baroque Period**

A study of the major stylistic developments in the music from 1600 to 1750. Monteverdi to Bach and Handel.

Prerequisite: MUS 203, 204

**MUS 395 3 credits**

**Seminar in Music History**

A seminar on selected topics in Music History. Prerequisite: MUS 203, 204.

**MUS 491 2-6 credits**

**Advanced Study in Music History**

Intensive study of research on a special topic in Music History under the direction of a faculty member.

Prerequisite: MUS 203, 204 and two of MUS 337, 339, 341, 343.

**Theory**

**MUS 109, 110 2 credits**

**Music Skills I, II**

An intensive study and practice of the reading, performance, notation and dictation of rhythm, meter, intervals, melody, and chords. Useful for all singers and instrumentalists.

Prerequisite: MUS 107 or equivalent.

**MUS 111 3 credits****Harmony I**

A study of tonal harmony, triads, seventh chords, chord grouping and voice leading. A course in tonal musical theory. Counterpoint may be prerequisite for Harmony I.

Prerequisite: MUS 107 or equivalent.

**MUS 113 3 credits****Counterpoint I**

A study of the literature and techniques of combining two or more musical lines into a polyphonic texture in the late Middle Ages, Renaissance, Baroque and Twentieth Century periods. A few selected models become the basis for listening and performance. The ad hoc analysis of each for coherent, consistent, internal theoretical practices will become the basis for creating original pieces that imitate the models. Harmony I may be prerequisite for Counterpoint.

Prerequisite: MUS 107 or equivalent and permission of instructor.

**MUS 209, 210 2 credits****Music Skills III, IV**

A continuation of Music Skills I, II.

Prerequisite: MUS 109, 110.

**MUS 211 3 credits****Harmony II**

A continuation of MUS 111 and 113. Work will be done in such areas as modulation, altered chords, harmonic structure.

Prerequisite: MUS 111, 113.

**MUS 212 3 credits****Twentieth Century Theory**

The fourth semester of the theory sequence for music majors. An examination of techniques such as those leading to free atonal style, non-tertiary harmony, pandiatonicism, and twelve-tone serialism.

Prerequisite: MUS 221.

**MUS 223, 224 3 credits****Electronic Studio Techniques I, II**

The study and manipulation of available electronic music equipment to get acquainted with its operation, care and possibilities. Tape techniques and repertoire will also be studied. Lectures, readings, and studio projects are included. Rudimentary music theory knowledge is necessary, though keyboard knowledge is not required.

Prerequisite: MUS 107 or equivalent.

**MUS 313 3 credits\*\*****Orchestration**

An introduction to range, function and transposition of instruments. Scoring projects will be assigned and selected scores will be analyzed.

Prerequisite: MUS 212.

**MUS 315 3 credits\*\*****Jazz Arranging**

A course covering various aspects of arranging charts for swing, jazz, rock, marching, or other pop style bands.

Prerequisite: MUS 212.

**MUS 316 3 credits****Teaching Children Music, Grades K-9**

A study of children's musical experiences in learning rhythm, in singing, in reading music, in developing listening skills, and in classroom instrumental activities coupled with pre-practicum observation in local schools.

Prerequisite: PY 201, or ED 310, or ED 205.

**MUS 317 3 credits****Teaching Music in Secondary Schools**

The methods and materials of the complete music programs in Middle and High schools with required observation for pre-practicum.

Prerequisite: PY 215, and permission of music instructor.

**MUS 319 3 credits****Principles of Conducting**

An in-depth study of conducting techniques appropriate for choral and instrumental ensembles is combined with the study and development of analytical techniques needed by the serious interpreter of music.

**MUS 333, 334 3 credits****Theory Composition**

A working survey of the theory and analysis of a free and dodecaphonic atonality, neo-modality, quartral harmony and extended tonality in the works of major composers such as Schoenberg, Weber, Ives, Bartok and Hindemith. Students will produce exercises in these techniques and forms. During the second semester, serial, aleatory, textural, cluster, graphic, and other recent procedures in composition will be examined.

Prerequisite: MUS 212.

**MUS 397 3 credits****Seminar in Music Theory**

A seminar on selected topics in Music Theory.

Prerequisite: MUS 212.



**MUS 411 3 credits\*\***

**Introduction to Schenkerian Analysis**

A study of the techniques derived from the analytic system of Heinrich Schenker for the analysis of tonal music.

Prerequisite: MUS 212.

**MUS 412 3 credits\*\***

**Form and Analysis Seminar**

Selected, exemplary works from the pretonal, tonal and post-tonal periods will be examined in detail. Advanced techniques in analysis will be explored. Much of the emphasis will be on deducing internal theoretical structures from the works and comparing and relating these to traditional theoretical systems.

Prerequisite: MUS 212, MUS 411 recommended.

**MUS 493 2-6 credits**

**Advanced Study in Composition**

Intensive composition studies on an individual basis under the direction of a faculty member.

Prerequisite: MUS 333, 334.

**MUS 497 2-6 credits**

**Advanced Study in Music Theory**

Intensive study or research on a special topic in Music Theory under the direction of a faculty member.

Prerequisite: MUS 411 and 412.

**Applied Music**

**MUS 119 3 credits\***

**Introduction to Vocal Pedagogy**

A preparatory course in techniques of voice production through demonstration, observation, and active participation.

Prerequisite: By permission of instructor.

**MUS 149-150, 249-250 3 credits**

**Applied Voice**

Weekly private lessons. By permission of instructor.

**MUS 349-350, 359-360 4 credits**

**Applied Voice**

Weekly private lessons. By permission of instructor.

**MUS 151-152, 251-252 3 credits**

**Applied Piano**

Weekly private lessons. By permission of instructor.

**MUS 351-352, 451-452 4 credits****Applied Piano**

Weekly private lessons. By permission of instructor.

**MUS 153-154, 253-254 3 credits****Applied Orchestral Instruments**

Weekly private lessons. By permission of instructor.

**MUS 165-166, 265-266 1 credit****Class Piano I, II, III, IV**

Instruction in piano for the beginning student. No prior musical knowledge is necessary. An electronic piano laboratory will provide the setting for class instruction.

Upper levels are continuation courses requiring permission of the instructor.

**MUS 169-170, 269-270 1 credit \*****Class Voice I, II, III, IV**

To bring to the student by observation, demonstration, participation and listening, a comprehension of the basic principles of vocal production and exposure to the vocal repertoire. Included will be vocalization, breathing language with application to literature. Besides class attendance, students participate in performance.

Prerequisite: Permission of instructor.

**MUS 180-181, 280-281, 380-381, 480-481 3 credits****Directed Instrumental Studies**

Under the supervision of a faculty member, a student may receive credit for a planned program of instrumental study. The student must submit a proposal for the study to the faculty member. His or her progress will be monitored and a semester-end departmental jury must be passed for successful completion of the course.

Prerequisite: Audition and permission of departmental chairperson.

**MUS 245-246 3 credits****Applied Vocal Repertoire**

Various interpretive styles of composers in song and music-drama-literature: diction, tempo, phrasing, dynamics, aesthetics, audience rapport. (Piano accompaniment available to students.)

**MUS 485-486 1 credit****Senior Recital**

This course, under supervision of the appropriate applied faculty member, is required of Music Major students in applied studies. The first semester and part of the second is to be spent in preparation for the recital. Consult with the department for recital guideline.

Prerequisite: Senior standing in applied studies.

**Performance Ensembles**

The performance ensembles are open to all university students subject to the approval of the director. They may be utilized as free electives and repeated for credit.

**MUS 155-156, 255-256, 355-356, 455-456 1 credit****SMU Chorus**

Open to students, staff, and faculty. Sight-reading not required but minimal experience in group singing desirable.

**MUS 157-158, 257-258, 357-358, 457-458 1 credit\*****Orchestra**

Qualified students will be permitted to play with the New Bedford Symphony Orchestra or other approved orchestras. Experience will be gained in the performance of works from the standard orchestral repertoire. Permission must be obtained from the applied instructor and department chairperson.

**MUS 159-160, 259-260, 359-360, 459-460 1 credit****Concert Band**

This course provides an opportunity for qualified students to perform major standards and contemporary band literature. One credit (1) per semester is granted, but it may be cancelled for less than one year's participation at the discretion of the conductor.

NOTE: Although anyone may participate in Band Activities, credit is only obtainable if you are a full-time student enrolled in a degree program at SMU.



**MUS 161-162, 261-262, 361-362, 461-462 1 credit****Small Instrumental Ensembles**

A performing organization devoted to the chamber music repertoire of all stylistic periods.

**MUS 163-164, 263-264, 363-364, 463-464 1 credit****Stage Band**

Performance of contemporary "Big Band" literature built on the elements of jazz.

Prerequisite: By permission of instructor.

**MUS 167 1 credit****Madrigal Singers**

Performance of madrigals and other works for small chorus from a variety of musical styles. Concurrent participation in MUS 155 is encouraged.

Prerequisite: By permission of instructor.

**MUS 247-248, 347-348, 447-448 3 credits****Music Theater Performance**

How a musical stage composition is developed and generated by a signal plan of composer, conductor, performer and stage director. Learning the language of the theater and the interrelation of drama, theater, opera, and music theater.

An opportunity for vocal students and music-drama enthusiasts to participate in production at a high level of performance standards.

Prerequisite: By permission of instructor.

\*Offered on a 4-year cycle: Consult with department for next scheduled semester.

\*\*Offered on a 2-year cycle. Consult with department for next scheduled semester.

Courses in Theater Arts are concerned with the history and theory as well as the craft of the theater. Presently, the courses are elective to the general student body of the University and can be used to fulfill humanities elective requirements in many degree programs. Theatrical productions are used as workshop experiences for the courses.

## **Theater Arts Courses**

### **TA 100 3 credits**

#### **Theater Workshop**

Provides an introduction to theater practice in terms of both acting and stagecraft. It also offers the possibility of working with production in front of audiences and some insight into the complexities of theater management.

### **TA 101 3 credits**

#### **Theater Workshop**

A continuation of TA 100.

Prerequisite: TA 100.

### **TA 200 3 credits**

#### **Theater Workshop**

Provides those who have already completed the introductory course with more advanced theatrical experiences as well as an opportunity to learn the rudiments of directing. Students in both courses participate in the full seven-production theatrical season at SMU, as well as in the student productions sent to area coffee houses and secondary schools.

### **TA 201 3 credits**

#### **Theater Workshop**

A continuation of TA 200.

Prerequisite: TA 200.

# **Division of Continuing Studies and Special Programs**





The dominant purpose of the Division of Continuing Studies is to identify and serve the educational needs of adult learners in southeastern Massachusetts. All courses of study leading to degrees in the undergraduate and graduate programs of the Division are approved by the faculties involved and are governed by the general University academic regulations.

Degree programs have been developed in the areas of business administration and liberal arts. Undergraduate degrees are offered in Computer Science, Electrical Engineering Technology, Management, Accounting, History, English, Multidisciplinary Studies, Psychology, Political Science, Sociology, Sociology-Criminal Justice, and Humanities and Social Sciences. Courses are offered at times convenient to adult students pursuing a degree on a part-time basis. Students may enroll in a single course or a program leading to a Bachelor of Arts degree, a Bachelor of Science degree or Master's degree in Business Administration, Art Education and Medical Laboratory Science.

Students who do not wish to pursue a degree may take one or more courses according to their interest. The credit courses may be applied to a degree program at a later date, or at another college or university. Non-credit offerings frequently culminate in the awarding of a certificate or of continuing education units (CEU's).

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## **Undergraduate Degree Programs**

Academic programs in Continuing Studies are designed to meet the needs of those who cannot pursue a full-time day schedule. Programs and courses may be arranged to complete a degree at an individualized pace, within various time-frames. At present, the Division of Continuing Studies offers all the necessary courses to meet undergraduate degree requirements in the following disciplines:

### **College of Arts and Sciences**

English

History

Humanities and Social Sciences

Psychology

Political Science

Sociology

Sociology-Criminal Justice

### **College of Business and Industry**

Accounting

Management

**Varied Programs**

In the College of Arts and Sciences, students may make arrangements to pursue an individual program in Multidisciplinary Studies, covering several subject areas. Students may also be able to arrange course activity to include some day school courses, and thus obtain a degree in a discipline other than those mentioned above (i.e. one in which the Division of Continuing Studies does not offer all of the requisite courses). Registration in day school is governed by policies and procedures for Special Students; these guidelines are available in the University Registrar's office.

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**Graduate Degree Programs**

Graduate degrees in the Division of Continuing Studies are offered in Business Administration (MBA), Medical Laboratory Science (MLS), and Art Education (MAE).

All courses listed at the graduate level may be taken only by those who have a bachelor's degree, or by those with relevant academic background who get permission of the instructor.

The Education and Psychology Departments presently do not offer a Master's Degree. However, cognizant of the needs of our surrounding communities, the Departments in conjunction with the Division of Continuing Studies offer courses which carry graduate credits to help satisfy the requirements of the school systems, meet additional certification requirements, and provide opportunities for further professional development.

The Division of Continuing Studies and the Education Department also welcome the opportunity of developing, with the various school systems in the region, in-service courses tailored to meet the specific educational needs of teachers. Such courses would also carry graduate credits.

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**Special Programs****Personal and Professional Development Programs**

The Division of Continuing Studies offers a wide variety of special programs, workshops, conferences, seminars, and other events throughout the year. Although they do not carry academic credit, these activities are intended to enhance job capabilities or develop new leisure-time skills, and may be offered for Continuing Education Units (CEU's) in order to meet certification requirements of some professions.

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## **Special DCS Centers**

### **Center for Energy and Environmental Management**

Officially created by the Board of Trustees of Southeastern Massachusetts University in May 1982, the Center is the culmination of several highly successful community-based conservation programs offered by the Division of Continuing Studies over the past few years. The goal of the Center is to improve the level of awareness and to increase skills in the areas of energy and environmental management among academic, business, and residential communities.

### **Center for Jewish Culture**

The Center for Jewish Culture was established in January 1981 by the Board of Trustees at Southeastern Massachusetts University. The purpose of the Center is to offer a variety of educational activities related to the unique aspects of Jewish culture. Funding for the Center is made possible through tax-deductible gifts and donations, as well as the sale of tickets at Center-sponsored events.

### **Institute on Health and Long Life**

The Institute on Health and Long Life is an independent activity within the Division of Continuing Studies, established to explore and examine aging as a developmental process and to provide information, education, and training to the consumers and providers of service to elders. Institute activities are organized around three categories: educational and cultural enrichment programs for elders; training programs for persons who provide direct services to the elderly; and academic programs for students of gerontology.

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## **Academic Information**

### **Credit for Non-Traditional Prior Learning**

Non-traditional prior learning is an innovative program which enables participants to gain academic credit based on previous learning experiences. It is designed for the returning adult student who would like to earn credits toward a degree. Individual knowledge at the college level from prior learning and work experience will be documented during a one semester workshop. Evaluation for credit of the documented learning experience will be completed at the end of each academic session.

### **Open Enrollment**

Any adult with a high school degree or its equivalent may register for courses. No transcripts, diplomas or other documents are necessary to reg-



ister for courses. Registrants are assumed to be able to do college work. Credit work completed in all courses may be applied toward a bachelor's or graduate degree under the degree requirements of the college granting the degree. Enrollment in courses does not constitute admission as a degree candidate at Southeastern Massachusetts University.

### **Degree Candidacy**

Anyone who has successfully completed 30 credits with a minimum of a 2.0 average at SMU or any other accredited higher education institution is eligible to be an undergraduate degree candidate. Application to degree candidacy may be directly through the Division of Continuing Studies.

### **Transfer Credit**

Credit may be granted for work completed in other accredited schools, colleges or universities. A degree candidate who wishes to receive transfer credit should have an official transcript sent to the Division of Continuing Studies. The prior course work will be evaluated and appropriate credit awarded.

### **Contract Learning**

Contract Learning, which enables students to earn academic credits for experiential learning projects formulated with the advice and consent of faculty, is open to Continuing Studies degree candidates. The program is open to all SMU degree candidates who, in general, have complete 54 credits. Students with fewer credits may establish capability for a proposed project and may participate in the program.

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## **Student Services**

### **Academic Counseling**

A staff of experienced professionals is available to assist students with routine and more crucial concerns related to academic decisions. Student considering matriculation in the Division's degree programs will find the staff extremely helpful in reviewing prior academic credits for transfer and in the planning of academic programs. Extensive work experience and other non-traditional learning can, in some instances, be translated into academic credit. Academic advisors are available each evening to assist students in planning programs suitable to educational and career objectives.

### Financial Aid Information

A full range of financial aid programs are available to the continuing Studies student. These include grants, low interest educational loans and scholarships. Individuals are strongly encouraged to explore their eligibility for these programs. Information in a printed form is available upon request. A full time financial aid professional can be contacted to help decide methods to assist in financing an education.

### Student Government

The Continuing Studies Student Government (CSSG) is the official representative voice of part-time students. CSSG elections are held during the Fall semester. CSSG recommends all allocations for expenditures of student fees. It is also instrumental in helping the University be more responsive to the special needs of the Continuing Studies student. The three dollar per credit hour student fee supports the following activities: Campus Center, Sunset News, Student Government Scholarship, Get-together, Cooperative Learning Center and many other activities.

### Testing

The Division's Testing Program provides a full complement of examinations. For those without college experience needing admissions testing, the University offers SCAT. The CLEP program is an opportunity for students who might be knowledgeable in some subject areas to gain college credit without taking the course. This exam is offered frequently throughout the year. For those seeking admission to graduate school, the following examinations are provided: GRE, GMAT and the MAT. International students have access to the TOEFL.

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## Tuition and Fees

### Fee Schedule (Credit Courses)

\$45.00 per undergraduate credit
75.00 per graduate credit
3.00 per credit general student fee (\$20.00 maximum)
1.00 per credit library fee (\$15.00 maximum)
10.00 registration fee
10.00 late fee
10.00-25.00 lab or studio fee as noted in course description

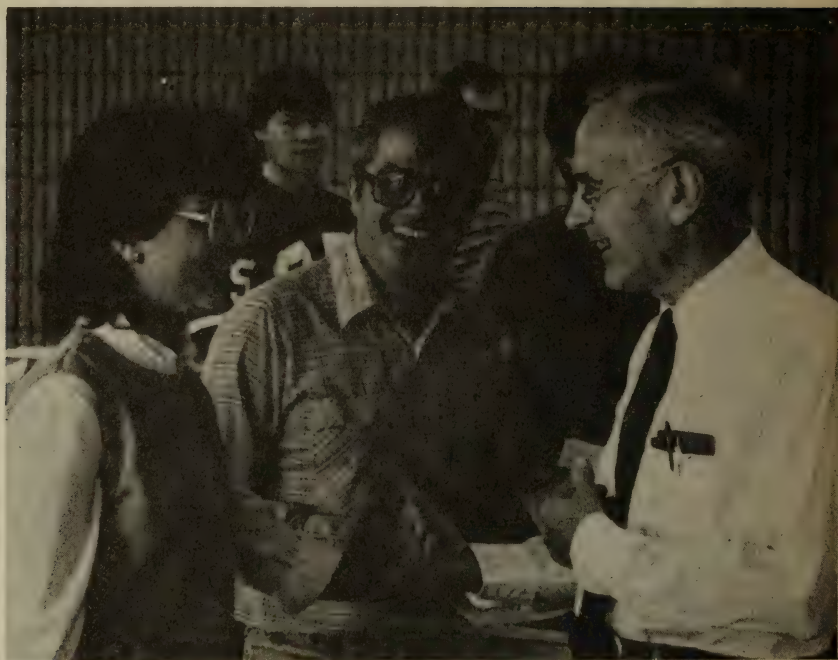
Undergraduate per 3 credit course	
\$157.00	1 course
304.00	2 courses
444.00	3 courses
582.00	4 courses

Graduate per 3 credit courses	
\$247.00	1 course
484.00	2 courses
714.00	3 courses
942.00	4 courses

### Non-Credit Courses

Tuition for non-credit activities in the Division of Continuing Studies varies according to the particular program

# Faculty and Staff





## Faculty

**Aaronson, Roberta H.** Associate Professor of Sociology (1978); B.A. 1969, University of Rhode Island; M.S., 1975, University of Minnesota

**Adams, Robert T.** Associate Professor of Music, (1978); A.B. 1968, University of California, Conservatoire National Supérieur de Musique 1968-69, Het Amsterdamsch Conservatorium 1970-72; M.A. 1973, Ph.D. 1975, University of California

**Ahearn, Marle L.** Professor of English (1965); A.B. 1953, Regis College; Ed.M. 1958, Tufts University; A.M. 1961, Boston College; Ph.D. 1965, Brown University

**All, Shaukat** Professor of Political Science (1970); B.A. 1942, M.A. 1945, M.P.A. 1964, University of Punjab, India; D.P.A. 1965, University of Southern California

**Andersen, L. Bryce** Dean, College of Engineering (1980); Professor of Engineering (1980); B.S. 1950, M.S. 1951, M.A. 1962, University of Minnesota; Ph.D. 1954, University of Illinois

**Anderson, Gordon F.** Professor of Mechanical Engineering (1967); Sc.B. 1948, Sc.M. 1951, Ph.D. 1962, Brown University; Registered Professional Engineer

**Argy, Dimitri** Professor of Mechanical Engineering (1967); Dip. Ing. 1946, National Institute of Technology, Athens, Greece; Dr. Ing. 1955, Aachen Institute of Technology, Aachen, Germany; Registered Professional Engineer

**Aruri, Naseer H.** Professor of Political Science (1965); B.A. 1959, American International College; M.A. 1961, Ph.D. 1967, University of Massachusetts

**Arvanites, Constantine** Associate Professor of Fine Arts (1982); B.A. 1963, Tufts University; MFA 1965, Tufts University

**Asato, Yukio** Professor of Biology (1971); B.A. 1957, M.S. 1966, Ph.D. 1969, University of Hawaii

**Atwater, Nathaniel B.** Associate Professor of English (1969); A.B. 1959, M.A. 1964, Brown University; Ph.D. 1968, University of Exeter, England

**Balley, Angus** Special Director of Dramatics (1966); A.B. 1939, Brown University

**Barense, Diane** Assistant Professor of Philosophy (1978); B.A. 1970, University Texas; Ph.D. 1979, Temple University

**Bar-Yam, Zvi** Commonwealth Professor of Physics (1964); B.S. 1958, M.S. 1959, Ph.D. 1963, Massachusetts Institute of Technology

**Barry, Robert E.** Professor of Design (1969); B.F.A. 1953, M.A.T. 1967, Rhode Island School of Design

**Bates, Alan H.** Associate Professor of Chemistry (1971); B.S. 1965, Allegheny College; A.M. 1966, Ph.D. 1970, Harvard University

**Bento, Robert** Professor of Physics (1961); B.S. 1956, Providence College; M.S. 1959, University of Maryland

**Bergandy, Jan** Associate Professor of Computer and Information Sciences (1983); M.S. 1976, Technical University of Poznan; M.S. 1976, Adam Mickiewicz University; Ph.D. 1980, Technical University of Poznan

**Berger, David E.** Associate Professor of Economics (1972); B.S. 1963, Temple University; M.B.A. 1966, Drexel Institute of Technology; M.A. 1968, Ph.D. 1972 Washington University

**Bergeron, Dorothy A.** Associate Professor of Medical Technology (1983); B.S. 1970, Rhode Island College; M.S. 1977, University of Vermont

**Bessette, Russell R.** Professor of Chemistry (1968); B.S. 1962, University of Rhode Island; M.S. 1965, Ph.D. 1967, University of Massachusetts

**Bide, Martin** Assistant Professor of Textile Sciences (1981); B. Tech. 1974, Ph.D. 1980, University of Bradford

**Boerth, Donald W.** Associate Professor of Chemistry (1978); B.S. 1969, North Dakota State University; Ph.D. 1974, University of Minnesota

**Brazil, John R.** President, Southeastern Massachusetts University (1984); Professor of English (1984); B.A. 1968, Stanford University; M. Phil. 1970, Ph.D. 1975, Yale University

**Breuning, Slegfried M.** Professor of Civil Engineering (1971); M.S.C.E. 1949, Technical University, Germany; D.Sc. 1957, Massachusetts Institute of Technology and Harvard

**Bronstad, Joseph A.** Associate Professor of Foreign Literature and Languages (1973); B.A. 1966, Lawrence University; M.A. 1968, University of Wisconsin; Ph.D. 1975, University of Connecticut

**Budinsky, Nurit** Assistant Professor of Mathematics (1983); B.S. 1976, Tel Aviv, Israel; M.S. 1980, Clarkson College

**Bush, John E.** Associate Professor of Sociology (1973); B.A. 1950, Delaware State College; M.S. 1954, Westminster College; M.A. 1968, Ph.D. 1976, University of Pittsburgh

**Butler, Martin J.** Professor of History (1963); B.A. 1956, Providence College; M.A. 1957, Boston College; Ph.D. 1972, Pennsylvania State University

**Callri, Victor P.** Associate Dean of Academic Affairs; Associate Professor of Psychology (1973); B.S. 1953, Ed. M. 1954, C.A.G.S. 1972, Boston University; M.A. 1963, Holy Cross College; Ph.D. 1977, Boston College

**Campbell, Allan L.** Professor of Civil Engineering (1962); B.S. 1951, Northeastern University; M.S. 1966, University of Rhode Island; Registered Professional Engineer

**Campbell, Ronald A.** Professor of Biology (1971); B.S. 1965, Roanoke College; M.A. 1967, University of Richmond; Ph.D. 1971, Iowa State University

**Capron, Donald** Assistant Professor of Management (1982); B.S. 1964, New York State University; M.B.A., 1981, San Francisco State

**Carey, Ann T.** Professor of History (1971); Chairperson, Department of History; B.A. 1957, M.A. 1959, Smith College; Ph.D. 1972, University of Rochester

**Carlson, Eleanor** Professor of Music (1973); Chairperson, Department of Music; B.M. 1959, Oberlin Conservatory; M.M. 1960, Indiana University; D.M.A. 1974, Boston University

**Caron, Paul R.** Professor of Electrical and Computer Engineering (1970) B.S. 1957, Bradford Durfee College of Technology (SMU); M.S. 1960, Ph.D. 1963, Brown University; Registered Professional Engineer

**Carrelro-Lewandowski, Elleen** Assistant Professor of Medical Technology (1981); B.S. 1975, Rhode Island College; M.S. 1979, University of Kentucky

**Carrera, Magali M.** Assistant Professor of Art History (1977); B.A. 1972, Arizona State University; M.S., 1974, M. Phil. 1976, Ph.D. 1977, Columbia University

**Carroll, John H.** Associate Professor of Political Science (1979); B.A. 1965, Northeastern University; M.A. 1972, Ph.D. 1977, Brown University

**Carter, Lynn Tondat** Associate Professor of Psychology (1975); B.A. 1971, M.A. 1973, State University of New York; Ph.D. 1975, Ohio University

**Caruso, John L.** Professor of Psychology (1972); A.B. 1968, Fairfield University; M.S. 1970, Ph.D. 1972, University of Pittsburgh



**Cass, Walter J.** Professor of Education (1948); A.B. 1943, Northeastern University; M.A. 1947, Ed.D. 1967, Boston University

**Caverly, Robert** Assistant Professor of Electrical and Computer Engineering (1983); B.S.E.E. 1976, M.S.E.E. 1978, North Carolina State University

**Chandy, John A.** Professor of Mathematics (1965); B.S. 1954, Kerala University India; M.A. 1962, Ph.D. 1965, Boston University

**Chen, Chi-Hau** Professor of Electrical Engineering (1968); B.S. 1959, National Taiwan University, Taipei, Taiwan; M.S. 1962, University of Tennessee; Ph.D. 1965, Purdue University

**Chopoorian, John** Professor of Management (1977); B.S. 1954, Brown University; Ph.D. 1960, Florida State University; Fulbright Scholar 1960-61, University of London

**Christlan, Ellen G.** Associate Professor of Institutional Nursing (1974); B.S. 1969, Boston University; M.S. 1973, University of Colorado

**Clark, Judith** Associate Professor of Community Nursing (1973); B.S. Ed., Fitchburg State College; M.S. 1973, Boston University School of Nursing; Ed.D. 1983, Boston University

**Cleare, Julie** Associate Professor of Psychology (1971); B.S. 1961, Seton Hall College; M.A. 1963, Ph.D. 1968, Fordham University

**Cleffl, Americus J.** Assistant Professor of English (1966); B.A. 1953, M.A. 1956, University of Missouri

**Cobert, Jacqueline Bazinet** Associate Professor of Music (1965); New England Conservatory

**Cobert, Josef** Professor of Music (1964); Diploma 1949, Paris National Conservatory; B.M. 1957, M.M. Musc. Ed. 1958, Boston University; D.M. 1972, Florida State University

**Collins, Harriet** Assistant Professor of Management (1982); B.A. 1972, U Mass/Amherst; M.A. 1974, George Washington University; M.B.A. 1982, Babson College

**Colt, LeBaron D., Jr.** Professor of Biology (1982); B.A. 1953, Trinity College; Ph.D. 1961, Boston University

**Cormier, Edward A.** Professor of Accounting and Finance (1958); B.S. 1948, Providence College; Ed.M. 1955, Boston University; Certified Public Accountant

**Corriveau, Donald P.** Associate Professor of Psychology (1980); B.A. 1973, Providence College; M.A. 1975, Ph.D. 1978, University of Rhode Island

**Cory, Lester W.** Professor of Electrical and Computer Engineering (1963); B.S. 1963, Bradford Durfee College of Technology (SMU); M.S. 1970, Northeastern University; M.Ed. 1974, Bridgewater State College

**Counsell, Alden W.** Professor of Mechanical Engineering (1953); B.S.M.E. 1949, Northeastern University; Registered Professional Engineer

**Creamer, David J.** Professor of Mechanical Engineering (1964); Chairperson, Department of Mechanical Engineering; B.S. 1958, Bradford Durfee College of Technology (SMU); M.S. 1960, University of Massachusetts; Registered Professional Engineer

**Creighton, Richard J.** Assistant Professor of Fine Arts (1981); B.A. 1975, University of New Hampshire; M.F.A. 1981, Pennsylvania State University

**Crowley, Michael** Professor of Mathematics (1958); B.S. 1947, M.A. 1949, Boston College

**Cummings, Herbert P.** Professor of Fine Arts (1966); B.F.A. 1951, Washington University; M.A. 1952, Indiana University

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**Curry, Thomas** Associate Professor of Civil Engineering (1983); B.S. 1964, Southeastern Massachusetts University; M.S. 1966, Worcester Polytechnic Institute; Ph.D. 1975, University of Rhode Island

**Dace, Tish** Dean, College of Arts and Sciences; Professor of English (1980); A.B. 1963, Sweet Briar College; M.A. 1967, Ph.D. 1971, Kansas State University

**Davenport, Alma** Associate Professor of Design (1982); B.F.A. 1970, Rhode Island School of Design; M.F.A. 1975, Rhode Island School of Design

**DeJesus, Ora** Assistant Professor of Community Nursing (1977); R.N. 1966, Newton Junior College; B.S. 1975, Salve Regina College; M.S. 1976, Boston University

**dePagter, James K.** Professor of Physics (1965); B.S. 1951, University of Arkansas; Ph.D. 1958, Washington University

**Deveau, Roger J.** Associate Professor of Management (1970); B.S. 1965, Southeastern Massachusetts University; M.B.A. 1967, Texas A & M University; D.Ed. 1976, Boston University

**Dillon, Mary Ann** Associate Professor of Institutional Nursing (1971); Chairperson, Department of Institutional Nursing (1984); B.S. 1966, Boston University; M.S. 1971, Boston College

- Dills, William L., Jr.** Assistant Professor of Chemistry (1982); B.S. 1967, Juniata College; Ph.D. 1973, University of Vermont
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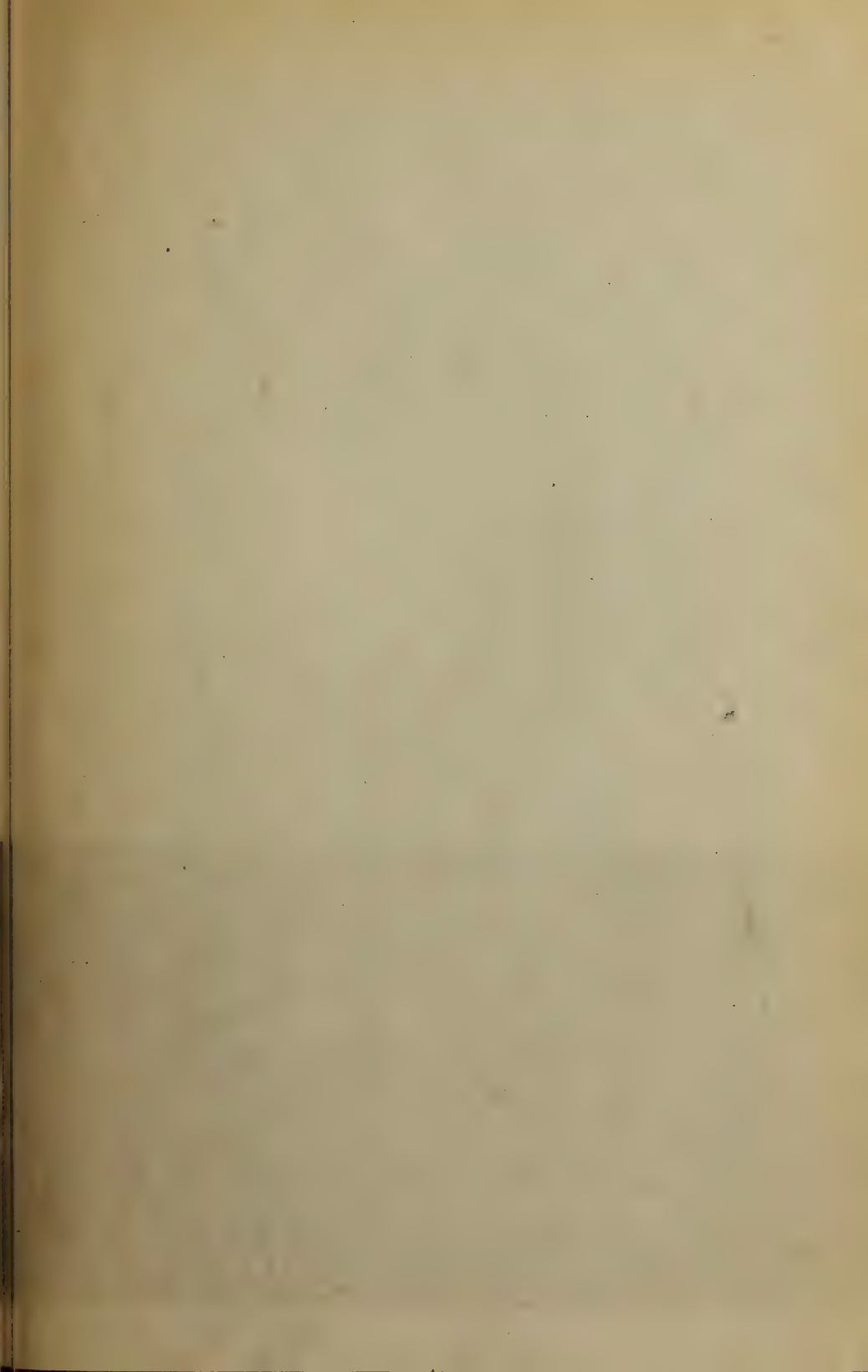
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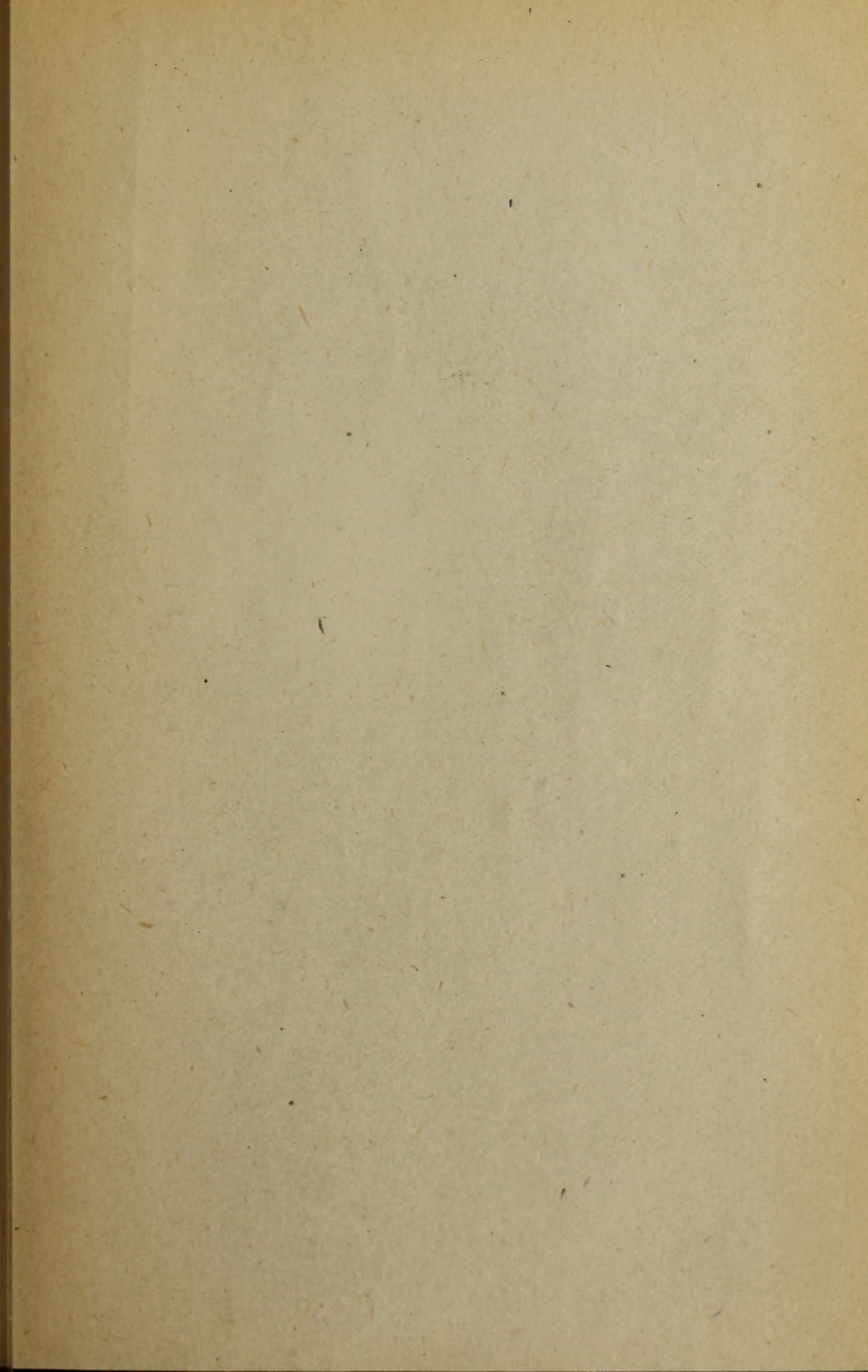
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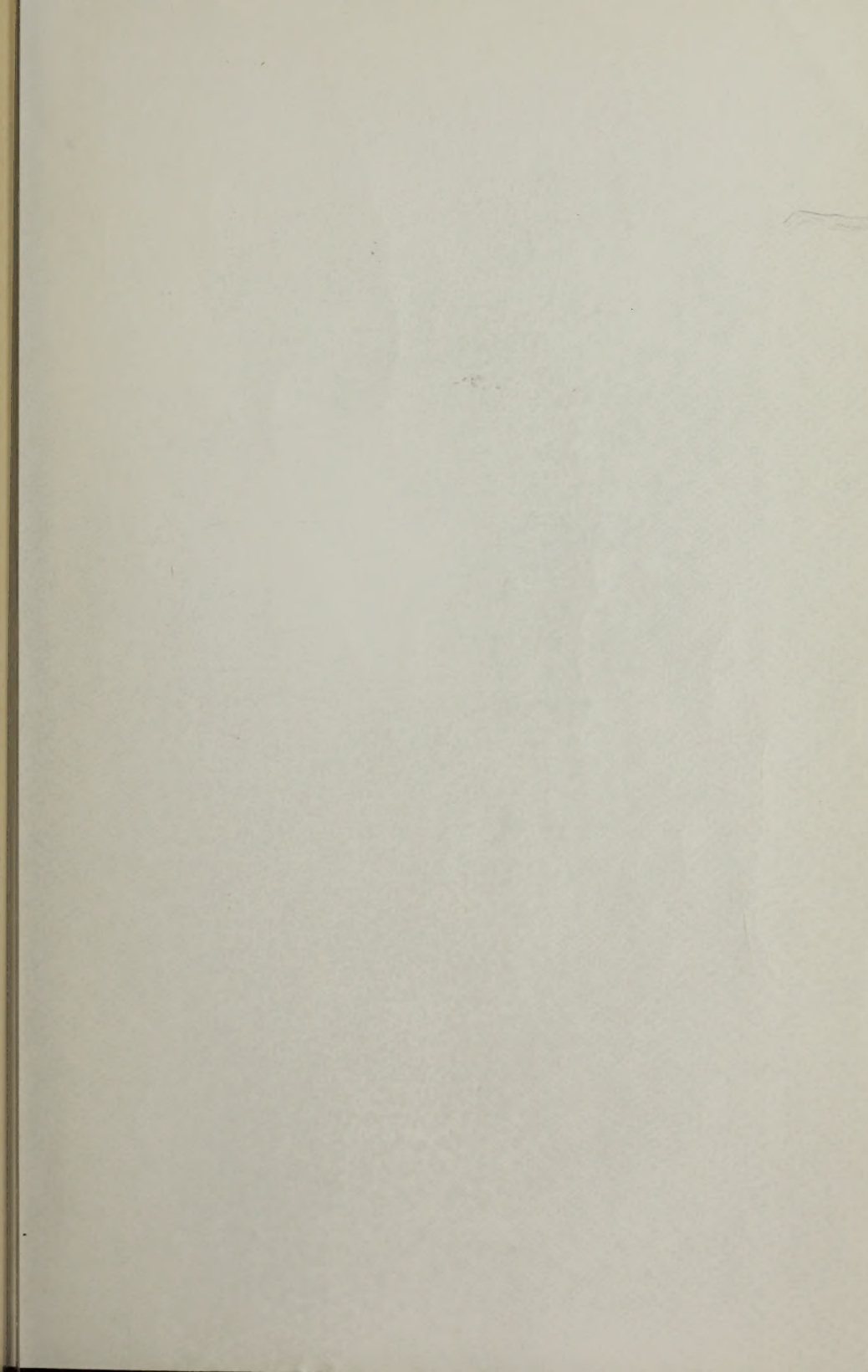


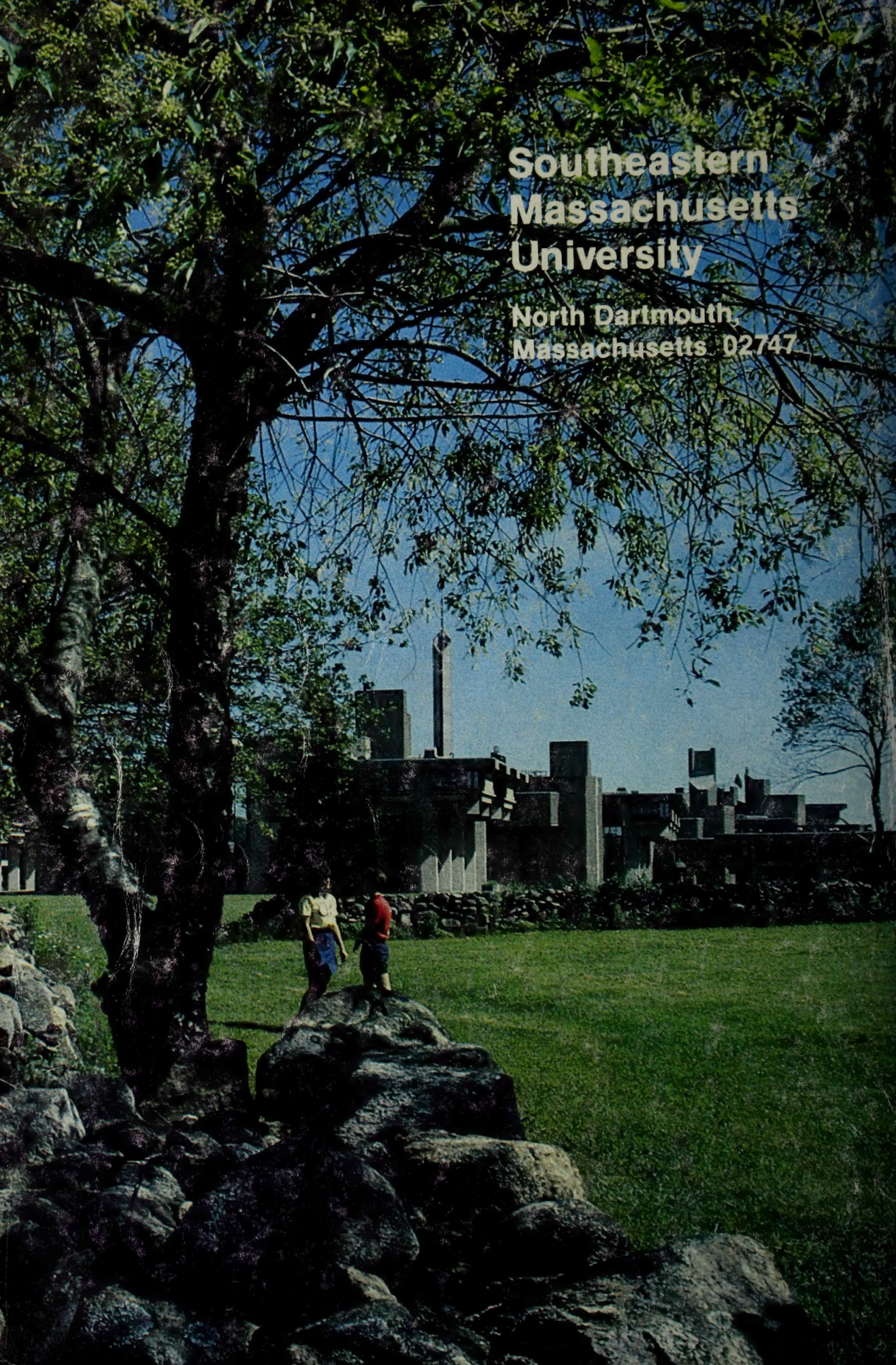










A scenic photograph of Southeastern Massachusetts University. In the foreground, a large, leafy tree with a thick trunk stands on the left, its branches spreading across the top of the frame. Below the tree, a large pile of dark, jagged rocks sits on a grassy slope. Two people, a woman in a yellow shirt and a man in a red shirt, are standing on the rocks, looking towards the background. In the middle ground, a large, modern, multi-story building with a complex, geometric design and a prominent chimney stands behind a low stone wall. The background is a clear blue sky.

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